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15.

Wednesday, December 16th, 1914—10 o'clock a. m.

Mr. Lindley: May it please the Court, I desire to make a suggestion for the benefit of all sides, as well as the Court. In the progress of this case, it has become necessary, and undoubtedly will *be* become necessary before its close, for each party to do certain work in certain sections of this mine, and I would like to have it understood that the work that is to be done on either side is not to disturb the *the* showings that now exist, and which have been put into the testimony.

I was advised last evening that certain upraises are being made in the neighborhood of the west stopes on the MacNamara and West End, which might have a tendency to shatter those walls, and modify the conditions.

Now, if that work can be done without doing that, why, of course, we have no suggestion to make. But if it is necessary in blasting, in making those openings, that it will disturb the conditions of those walls, I would like to suggest that the Court make the inspection of that section of the mine before that work is done, and then they may go ahead and shoot all they please.

In other words, I am anxious, and I think that all ought to be, that the statue quo, so far as the existing developments be maintained until the Court has an opportunity to see these important points.

Mr. Dickson: I think I know what Mr. Lindley has in mind. There was some complaint made, or properly speaking, some criticism made in the cross examination of some — our
685 witnesses of the fact that we had one raise in the westerly portion. This A raise was the only one, while at the easterly end, we had a number of raises there going out like fingers. In view of that criticism, we have concluded, and have started, one or two—one raise, I am sure, easterly of the raise A. We do not intend in starting that to break what they call the crest of that fold any more than it is broken where raise A goes up; not at all.

Mr. Lindley: Well, my people have advised me last evening that it would have that effect. Of course, we do not want to take any chances on it.

Mr. Dickson: No, the raise is already up, the one I have in mind is already up above the crest of what you call the fold, going up just as raise A did. We want to show if we follow this vein to its utmost termination that it does not form a crest.

Mr. Lindley: I understand the object of it, and I would not have mentioned it if my engineers had not made that suggestion. And all I am anxious—I am glad to have you do the work, but all I am anxious for is that it shall not disturb the physicial appearance.

Mr. Dickson: I think we both understand that his Honor, from his connection with some litigation in which this same section was

involved, is doubtless familiar with the appearances there as they are now.

Mr. Lindley: That is a long while ago and we do not want to trust to recollections.

Mr. Dickson: We have no objection to the Court going down now and looking at it, but the raise is already above the crest of the fold and it has not disturbed the walls there, so I am informed.

686 Mr. Lindley: I merely mentioned it, Judge Dickson, so we would have an understanding about it.

Mr. Dickson: I do not want to—we haven't any right and do not intend to do that.

Mr. Lindley: I do not mean that you intend to disturb that situation, but my people expressed a fear that that would be the result, and I thought to avoid all question, the Court might go and look at that particular point; it won't take but a short time, and then if you destroy it, it will make no difference.

Mr. Alling: We have 60 or 80 feet in the crest there of that so-called roll, and 4 feet, more or less, won't make any great change in the appearance.

Mr. Dickson: I have no objection to the Court going and looking at that whenever he desires.

The Court: I am willing to go at any time, and as often as Counsel wish.

Mr. Lindley: I think it would be well to avoid all question, if the Court can go down with an engineer on each side and look at that place at this time.

Mr. Dickson: All right; there is no objection.

Mr. Lindley: Now, there is another thing I would like to call the Court's attention to, and Counsel; in the testimony of the witnesses, there is going to be a confusion here in an important raise, which is raise 152 on the Defendant's model, and we have been referring to it on our model also by the same number, and that is a mistake. I understand that the raise that you refer to as 152 is our raise 262. Is that right?

Mr. Finch: That is right.

687 Mr. Lindley: That is a misunderstanding.

Mr. Dickson: 152 on our model is 262 on your model?

Mr. Finch: Yes.

Mr. Lindley: So that may be understood. We assumed that we had the same system of numbering, so that the testimony of the witness when it is transcribed we may correct it so as to insert that 262, or the equivalent of that.

Mr. Dickson: There is just one place where he said in answer to a question of mine that they were the same on both models.

Mr. Lindley: So that there will be no misunderstanding.

Mr. Dickson: A few questions further only on cross examination.

The Court: I did not call the case, but we will consider it called, already.

Cross-examination of JOHN W. FINCH, resumed.

Mr. Dickson:

(Q.) You, in your direct examination, Mr. Finch, alluded to a place in what was called the Ohio territory where you had seen this same vein disclosed?

A. Yes.

Q. Will you point out, as nearly as you can, where that is with reference to the most westerly working on what we call the north dipping vein, as shown on the model?

A. It is not on the model.

Q. No, I say where is it with reference to the westerly termination of the ore on what we call the north dipping vein, as shown on the model?

688 A. It is not on the model.

Q. No, I say where is it with reference to the westerly termination of the ore on what we call the north dipping vein, as shown on the model? Where, with reference to that westerly, how far?

A. Well, the stope to which I referred is just beyond the end of the model.

Q. About how far west or north?

A. With reference to your raise A?

Q. Well, it is north, as I understand, of the stope shown either on your model or ours at the west end?

A. It is a little over 300 feet northerly, and about 500 feet westerly.

Q. 500 feet westerly of anything that is shown on Plaintiff's model, exhibit 2?

A. Oh, no; no.

Q. Well, that is what I am asking.

A. I understood you to ask me how far north and west it was of works which the west end had done.

Q. Oh, no. How far north and west, if at all, is the place where you have this same vein developed in the Ohio territory of the north westerly extremity of the stopes shown upon Plaintiff's exhibit 2?

A. Only about a hundred feet farther west.

Q. And how far north?

A. In about the same relative position, so far as north and south is concerned.

Q. It is not very much if any further north, but about a

689 hundred feet west. Could you give the distance west definitely?

A. The model ends upon the stope which I now indicate (showing). The other stopes shown upon the plan map exhibit 1, extend about 80 feet west of the stopes shown upon the model, and about the same relative positions. Two separate stopes.

Q. Can you give a station number in each of the stopes which you refer to as being in the Ohio territory? One station number will do in each stope.

—. —.

690 Q. Can you give me the station number in each of those

places which you refer to as being in the Ohio territory. One station number will do in each stope.

A. One of the smaller stopes is at the mouth of the cross cut leading around from the West End into the Ohio, at station 325,-A. W.-4, another little stope of a similar nature is in the region of A.-W.-14; and then there is still another stope or raise further north.

Q. Not shown?

A. Not shown upon the map, because it has been done very recently.

Q. Any further to the west?

A. A little further to the west,——

Q. About how much further to the west than the two which you have just referred to?

A. It is the end of the cross cut in blue marked 300 West End, where the ore body has been developed again and followed up in a raise. I don't know that it could be called a stope.

Q. It is the same vein, in your judgment?

A. Oh, yes, undoubtedly.

Q. How far would that last stope on the vein be west of the northwesterly extremity of the stope as shown on Plaintiff's model exhibit-2?

A. About one hundred feet west, no about one hundred feet north of the northwest extremity of stopes.

Q. You can plan the scale,——

A. It is measured along for a considerable area, but the distance is one hundred feet west,—100 feet north of the westerly stopeing done on Exhibit-2.

Q. Have either of those three stopes which you have just now referred to been followed upward to a termination? If so, against what does either of them terminate?

A. Oh, yes. The stope first referred to at the mouth of the cross cut leading from the West End mine, the ore in that stope
691 has been followed up to the terminal edge of the vein against the Fraction breccia.

Q. Have either of the others been followed up to a contact with the Fraction breccia?

A. Not when I saw them last, a few days ago; they lie to the north and down the slope of the vein.

Q. What you have spoken of, Mr. Finch, as the Fraction Dacite breccia, you understand is what some of our witnesses have spoken of,—that is, at this westerly terminal edge, so called, does what you call at that place Fraction dacite breccia, what you understand our witnesses to call Brougher Mountain andesite?

A. Yes, we are referring to the same rock body.

Q. I beg your pardon.

A. Those terms we are referring to the same rock body in the testimony.

Q. I wish you would put up one of the Finch sections,—Finch-2 or Finch-3; I want to ask you a question.

A. Which one,—do you recall?

Q. One where you had the northerly dipping vein faulted?

A. Oh, yes. It will be section 5 or 6.
Q. It is near the westerly end of the MacNamara.
A. This is one of them.
Q. That is the one I had in mind.

Mr. Lindley:

Q. One of the sections or one of the cross sections. There is another cross section behind that table.

The Court: There are three of them here, No. 8, No. 4 and No. 1.
Mr. Dickson: Which one is this?
The Witness: Finch No. 7. Being section 13 of the glass model.

Mr. Dickson:

692 Q. You have a number of faults shown on the north dipping vein on that section, which has caused displacements of the vein to some extent.

A. Yes.
Q. As you travel down that northerly dip as we call it, in the direction of the displacements the same on each fault, or in some places, take what I will call the northerly side of the fault, with reference to the southerly side of the fault, and in either case the southerly side of the fault raises relatively to the northerly side of the fault,—do you understand the question?
A. Yes. I will have to answer that in this way: That the actual movement of the blocks of rock may have been in each instance in the same direction, and on the left of each of the faults, but that the vein at that point is so extremely irregular in small details that the effect of opposite directions may have been produced.
Q. Well, has it that appearance now of opposite directions of throw?
A. Yes.
Q. Is that the appearance?
A. Yes.
Q. Have you depicted upon this "Finch-7" accurately an actual measurement of the extent of displacement along each of these planes of faulting?
A. As near as could be determined on each of them and in some instances with some accuracy. The one that shows the greatest displacement gives an excellent opportunity to measure the amount of displacement along the dip of the fault.
Q. That is shown accurately on this sketch?
A. Yes.
Q. The others are approximate.
A. The others are determined largely by the amount of throw of the ore streak.
Q. Take the most northerly,——
A. The most easterly?

693 Q. The one next to the most northerly; the second one as we have a summit up that stope. There is some displacement of the vein shown on all that plane or fault.

A. Yes.

Q. What is the appearance there? that the southerly side of the fault has gone up into the northerly side of the fault, or the reverse?

A. Do you mean northerly and southerly in that section, or easterly and westerly? The direction of the section here is north and south, and the direction of those faults would be east and west.

Q. Yes. I stand corrected. You are correct.

A. The faults do not cut squarely across the section.

Q. As we start from the most easterly fault upon this section and come to the next one, what is that?

A. Judge, I believe I have confused you. That is starting at the north.

Q. I was right then in the first instance?

A. Yes, but the strike of the fault is northerly and southerly.

Q. Well, I do not care about the strikes, I understand them.

A. The second one shows evidence of being a normal or gravity fault one which the hanging wall side of the fault dragged downward.

Q. The opposite side went upward or the other?

A. Yes.

Q. You spoke also in direct if not in cross, of places where you found float, beneath this fraction dacite breccia, which you took to be the result of erosion upon the old surface, will you point out the places as definiteoy as you can, where you found what you believed to be that condition?

A. In a general way——

Q. Now, I don't want it general. I want it as specific as
694 possible so that we may have it examined if we desire to examine that particular spot.

Q. That would be practically reitteration of the points where the terminal edge is found. In the 600 it is well exposed, but mixed with the dacite breccia with the down flowing fragments of the vein.

Q. If you will be good enough to give each place so that it will be in the record, so that we can show it to our witnesses.

Mr. Lindley: Did you say float or flow?

Mr. Dickson: Float.

A. Seen for the last fifty feet of the extreme west end of the 600 level; it is seen to a certain extent in the west end of the 500 level, but not exposed so clearly as it is in the 600 it is shown very clearly in the 300 level of the West End, in the region where the yellow represents the rocks——

Q. Is in contact?

A. Is in contact with the apex of the vein. There are boulders of quartz to be found in this vicinity for a considerable distance away from the vein.

Mr. Lindley: This vicinity is what?

A. The 300 level of the West End westerly beyond the apex of the vein,—and these boulders of quartz having been dislodged from higher points along the apex; another point in the 166 level fragments of float are very clearly shown.

Mr. Dickson:

Q. Whereabout?

A. 166 level.

Q. At what particular point?

A. In the vicinity of the top of the raise, which connects upward with that small level. The same may be said of 172 level, the exposure being of the same character. It is also shown in the stope which has been referred — at the mouth of the cross cut leading from the West End to the Ohio.

695 Q. Near what station?

A. In the back of the stope. There are not any station- up in the back of the stope, but this extreme southwesterly extremity of the stope and the little projection which is shown in the extreme southwest corner. Then down in the *corss* cut marked 10-A the same condition is shown to the west.

696 Q. Any other places?

A. There are two or three other places in which the development does not show it so well as in the ones I have mentioned, but does show it, nevertheless. For instance, in the cross cut running out from the 1186 level of the MacNamara, it is shown as yellow on the model.

Q. Any number in it on the model?

A. Pardon me?

Q. Any number to that piece of work on the model?

A. Marked 273 X. The point of meeting of the end of the vein of the Fraction breccia at that point is confised somewhat by a fault which slices practically along the end of the vein. So that is not as good an exposure of what we are discussing as the other points are.

Q. Now the entire of the trachyte throughout the mine which underlies and is in contact with the cap rock was an eroded surface when that cap rock flowed out, as you *you* contend or believe?

A. I will have to hear that question.

Q. The trachyte is the rock which immediately underlies the cap rock?

A. The other cap rock, yes.

Q. Well, you do not find this fraction dacite breccia anywhere except this westerly extremity, then, am I right in that?

A. In this westerly region, this fraction dacite breccia overlies the other cap rock, the midway as well as the Mizpah trachyte.

Q. The cap rock overlying—over the surface generally overlying your fraction dacite breccia and other cap or flow before

697 that?

A. Oh, yes, there are later rocks, as Brougher, but those are considerable distance away from the area of these maps and exhibits.

Q. From where?

A. They are — considerable distance away from the area of these exhibits. The fraction dacite breccia, in other words, is a cap rock which caps a cap rock, as well as the exposure of the vein in the underlying rocks.

Q. What is the rock next above the trachyte?

A. The trachyte?

Q. So far as developed in these workings, what is the cap rock next above that, what do you call that?

A. Over the greater part of the area of the mine, it is Midway andesite.

Q. Midway andesite?

A. But as we come towards the west, Midway andesite, as I have shown upon the little block model, the Midway andesite comes to an edge, and has been eroded away, and the fraction breccia overlies that edge and passing down from the Midway andesite, overlies the Mizpah trachyte, the lode porphyry, after it passes the outcrop of the vein.

Q. Well now, before your Midway andesite, is it?

A. That is the earlier cap rock.

Q. Yes, that is the earlier cap rock. It is your opinion that the underlying trachyte, at its upper surface, had been exposed to the surface action for a long time before that Midway andesite flowed over it?

A. Yes, I think so.

Q. A long time, speaking geologically?

698 A. I don't know how long the time was.

Q. Of course you do not, but you think a long time, even in a geological sense of time?

A. It certainly was a considerable period of time.

Q. You have observed a number of raises going up in the trachyte to a contact, and in some places up into what you call the Midway andesite?

A. Yes sir.

Q. Have you found anywhere evidences of debris there at the plane of contact?

A. Not in all cases because——

Q. In any case?

A. Yes.

Q. Where?

A. As I remember it, up in raise B.

Q. In raise B?

A. Yes. The base of the Midway is a very loose material at that point. Now, I wish to explain that answer further: that is one of the few places which we find around the mine workings in which the Midway has not bee- brought down into contact with the trachyte by faulting movement, creating an artificial contact, and not a contact of a rock which overflowed what was once the surface of the earth. So where it is a fault contact, the loose material which would have been found, would be found if it had been the land surface, does not appear.

Q. Point to any other place where you find the debris along the plane of the contact between your Midway andesite and the underlying trachyte?

A. The 400 level of the Jim Butler is another case where the Midway is found lying upon the trachyte, practically in its
699 natural position. There, the bottom of the Midway is a considerable band or mass of loose material.

Q. Fix that place definitely?
A. That is, of course, an older cap rock contact.
Q. I understand.
A. And there has been considerable cementation and filling up of that loose material since the contact was formed.
Q. I want the place definitely fixed where you find the debris.
A. In a general way——
Q. I do not want it in a general way.
A. It would not be a point because it covers a considerable area.
Q. Just give us the place, then, so we can go to it and examine it?
A. You will find it a short distance above the 400 level of the Jim Butler in a raise which has no name here, but is exactly on the south side line of the West End.

Mr. Lindley:

(Q.) Is that the 420 raise?
A. I have never had occasion to use the number of it before. It does not appear on either the model or the map. I will mark it 420 raise for reference.

Mr. Siebert: 420 Jim Butler.
Mr. Dickson: All right. I have no objection to Mr. Siebert, or any other witness fixing the place.

Mr. Lindley:

(Q.) Is that marked on the Defendant'- model?
A. No, it is not. It is the raise which is shown a very short distance above the Jim Butler 400 cross cut; that contact shows soft, loose material, the contact.

700 Mr. Lindley: It is not numbered on your model, either, Judge Dickson. He can point out the raise on your model, if you would like to have that.
Mr. Dickson: Well, you can point it out on our model.

A. It is in the same position as this and marked green on your model instead of purple; the contact being the same in both cases, the same position. Southerly from that raise on the Jim Butler 400, some 50 feet, is a cross cut extending towards the north east.

Mr. Dickson:

(Q.) There must be a station number there, I take it, at that junction?
A. It is not numbered, but it is a point—the mouth of the cross cut is at a point about 50 feet south easterly from the 420 raise.
Q. And it is at the mouth of that cross cut?
A. Yes.
Q. Where we find the——
A. No, right near it.
Q. How near it?
A. The contact is practically in the roof of that cross cut, and as you step only for a short distance towards the north east, toward the

cross cut I have mentioned, which divides into two prongs, shown purple on the plan map. Only a short distance from the mouth of that cross cut, the Midway andesite comes into the roof and follows flatly along the roof for a distance, and then practically level with the cross cut toward the north east. That is a natural contact, not brought into position by fault.

Q. There you find what you take to be debris as the result of the surface erosion?

701 A. Yes, debris much compressed on account of its age, and on account of the weight of the rocks above it, but, nevertheless, soft, disintegrated material as compared with the massive rocks which overlie it.

Q. Where else?

A. There are very few other developments of the contact where it has not been affected by faulting.

Q. Do you find it anywhere else than the two places you have mentioned, then?

A. No. I will state that we find the contact at other places where it is not faulted, but in some of these cases it is a very obscure contact; the contact has been obliterated by subsequent chemical action.

Q. About where, as you travel westerly, do you have a change from the Midway andesite to the fraction dacite breccia?

A. Well, as you travel westward, you find the transition from one rock to the other along a very irregular line.

Q. Well, about where do you have the—if there are two distinct outflows, and a long lapse of time intervening between the two, I suppose there is some line of demarkation that can be fixed with some degree of accuracy?

A. Yes, that is shown in a general way on the yellow surface of the block model.

Q. Now, can you point out on either model, Plaintiff's Exhibit 2, or upon Plaintiff's exhibit 1, where you find that change, Midway andesite to the fraction dacite breccia? Or you can do it on the plan map, exhibit I?

A. Yes.

Q. Well, take that.

702 A. But the question is not an easy one to answer for this reason: That for the entire length of the map east and west we have Fraction dacite breccia. If you go to a certain elevation we find it and it slopes off westward so that we find it a deeper elevation as you go in that direction. It is found in the Fraction No. 2 shaft, and it is found in the McQuillan shaft and it is found in the summit of the raise which is marked on the map overlying Midway andesite, the raise 420. It is found in the Corkhill working shaft of the West End.

Q. Then, are we to understand that what you call fraction dacite breccia, that rock extends over the Midway andesite throughout the working shown upon these maps and models?

A. Throughout an area about like this (indicating), follow such a line.

Q. That won't show anything in the record.

A. All but a small part of the north easterly area of the map; or rather, the north easterly area of the north east corner of the map, and the little block illustrates the—covers about the same area as the map does, and this irregular edge shows about how far the fraction dacite breccia extends in the area of the map.

Q. Extends easterly?

A. This is where it comes up to the surface extending north easterly; upward on its dip. It is found in a great number of the workings.

Q. Will you give us the number of the sheets in exhibit 3 that have been passed through that section of the country lying
703 between raise 7 A on the east and raise 302 westerly thereof?

A. 3 intervening between those points.

Q. What are their numbers?

A. 5, 6 and 7.

Q. Now, in that area——

A. You will find those numbered here (indicating)

Q. Oh, yes. In that area, lying between raise 7 A on the east and 302 on the west, if there ever was or is now a crest of a fold, it has not been developed, of course? You can see that by looking at the model, it is perfectly clear?

A. It has not been developed continuously clear across between the MacNamara and the West End, but it has been developed sufficiently to be, in my mind, beyond question.

Q. Where is the crest of the fold between raise 7 A and raise 302 developed?

A. The dip of it on the north side——

Q. No, I mean the crest. I mean the crest. It might come very near together, and yet not meet. Where has the crest of the fold been developed, if at all, between those places?

A. Approximately, the crest of the fold is developed at the foot of 372 raise, which is about 125 feet east of 301 raise.

Q. Practically. Has it been develepod actually?

A. I think so.

Q. What?

A. Yes.

Q. Can you point out the model that?

A. That is within a few feet of the actual summit of the anticline.

704 Q. Is the summit of the anticline disclosed there? A few feet might be all important?

A. And it is exposed also, well——

Q. Answer the question. Has the summit of the anticline been exposed at the place you have just referred to?

A. Yes, I think it has.

Q. Well, why do you say within a few feet of the summit?

A. What I mean is that either one side or the other of that working, a few feet, there might be a point that would be slightly higher, the strike——

Q. Well, put it this——

A. No, let me answer the question completely. The strike of the

quartz at that point is such, and the dip of it towards the east is such that it is almost positively the summit of the anticline.

Q. All right. Take section 5, in Exhibit 3, or sheet 5, how is it there where that plane was passed through as to any development of the crest of this fold?

A. It is found on each side, under a thick layer of the Mizpah trachyte which has not been eroded, hence it is not eroded at the actual summit.

Q. That is what I want. If it is not developed, I want you to say it is not developed, there, is it?

A. I did say that.

Q. And where section 7 passes through the crest of the fold is it developed there?

A. Yes, I think it is.

Q. Does not show so on the model, does it?

A. Yes.

Q. Where?

A. 366 raise.

705 Q. Point to the place. I do not know these numbers.

A. It is developed at the summit, in this net work of working around 302, and toward the east.

Q. If my eyes do not deceive me, that raise is easterly of section or sheet 7. I want it right on sheet 7.

A. Yes, right on sheet 7, at the foot or near the foot of 366 raise is the summit of the anticline.

Q. There is no working there indicating that you go from that point northerly and southerly, though?

A. There is not only a working, but a series of workings.

Q. They do not show on the model?

A. Permit me to explain: the vein which to the south west is developed with a north easterly strike is found in a drift or cross cut running to the 372 raise, and in the main cross cut at the 200 level passing from a south west strike to a northerly strike, and back again to a north westerly strike, and the form and position of the summit of the anticline is, in my mind, perfectly developed.

Q. Are all the works in that intervening space, namely between raise 7 A and raise 302, shown on this model.

A. All the workings.

Q. Yes, that are in the mine; are they shown on that model?

A. No, there is one little working that is not shown.

Q. Where?

A. A little raise that connects up through into your 302.

Q. That is east of 302?

A. Yes.

Q. I am speaking between——

A. No, it is right under 302. There is a raise that con-

706 nects up through there that seems to have been left off the model, a short one.

Q. 302 we admit that the crest is there approximately. But between 302, and thence easterly to raise 7A. My question was directed

to that space. Have you told us all you have to say of the disclosure or exposure of the crest of the fold in that area?

A. Yes, it is well exposed in the section 7. I only have this much to add, if it is proper to add it: that in the exposures, say along section 5——

Q. And 6?

A. Well, 6 developes it; crosses about through the end of this drift, so that section 6 will show t-e summit of the anticline about as I now hold my finger, just to the east of raise 372. The raise is shown up there. (Indicating.)

Q. You can see that is a very considerable distance east of Section 6? It must be——

A. No.

Q. That raise on the map upon which the model rests——

A. The raise is west.

Q. West; is about how far west of Section 6?

A. About 35 feet.

Q. I want it on the line of the section?

A. Then the drift extends on and in the floor of the drift the anticline is shown, the summit of the anticline is shown very nearly to section 6, dipping downward.

Q. That part of it is colored green on your model?

A. On this other side it is colored better.

Q. It that color green or any other color on that side?

A. Well, the direction of the dip of the summit is shown better on this side.

707 Q. That line of work to which you point has the green top, sides and bottom, has it not?

A. I said the summit of the anticline is the foot of 372 raise, dips flat towards the eastward in Section 6. And the cap rock or trachyte is full of hanging wall stringers where it is shown green upon this working.

Q. All right. Have you anything else to say?

A. I only have this to say: that if you go into drifts 442, 478, and such drifts lying on the south slope of the anticline in section 5, that you will find a very great thickness of the lode porphyry overlying the vein. It has not been eroded. You go to the MacNamara on the other side you find also the Mizpah trachyte, not eroded. You go eastward into Section 4, and you find the overlying trachyte still intact. That is in explanation of my statement that I believe that the anticline is sufficiently developed so that I can state that it has not been disturbed by erosion.

Q. That is your opinion?

A. That is my opinion, yes sir.

Q. On the section 5, as well as on 6 and 7 that pass through that intervening country, referred to, the arch or crest of the fold is shown as uninterrupted and unbroken as it is on any other section in the model, Exhibit 3? I am not finding any fault with it, but that is the fact, is it not?

A. There is plenty of information near at hand for the representation in Section 5.

Q. Oh, well, answer my question. Read the question to the witness.

708 Some of these questions might be answered, I should think especially a question like that, without any explanation.

A. I did not intend that as an explanation. It is a statement. The representation in section 5 is not a continuous representation of the vein, but is a coarse dotted line.

Q. Any more there than on the other?

A. Yes. I will point them out to you.

Q. I can not see through that model.

A. The heavy, broken red lines representing the summit of the anticline. Of course, it is not exactly developed, but its position is based upon information near at hand.

709 Q. Now, take,—there is one of those which seem to be practically unbroken.

A. Made up altogether of——

Q. Well the one that you are just pointing to now, right at the summit of the fold,—is that unbroken?

A. No, I don't think so, it was not intended to be.

Q. Have you pointed out in your cross examination yesterday all of the places on this westerly terminal edge of the vein which you have referred to where you find oxidation?

A. I don't think that I have overlooked any of them. The oxidation occurs at all of the point- I have pointed out.

Q. Now come to Defendant's model Exhibit-A for a moment. I will call your attention to the most westerly stopeing shown upon this exhibit, on the north dipping vein. Don't you have it there in contact with that what you call the Brougher andesite and what you call the Fraction Dacite breccia?

A. We have the same representation that you have; ours is green on the upper edge. There is more of it shown on this model.

Q. You did not point that out as one of the places where you found the oxidation; did you find the oxidation there?

A. Oh, yes, also where in your model you have the green color.

Q. You did not point that out yesterday as one of the places where you found oxidation?

A. If I did not I will, because the oxidation exists there at the summit of the stope where the green is shown.

Mr. Lindley: That is identified by what number, if it has a number?

A. That is the very same stope that I described as being at the mouth of the cross cut from the West End mine,—the long curving cross cut.

710 Mr. Lindley: All right the long cross cut.

A. Yes, it is the stope here.

Mr. Dickson: I am not speaking of that, that is not shown upon our model at all.

A. Yes, that is the one we were just talking about.

Q. Is that shown on our model?

A. Yes; the prong extends further up on your model than it does on ours.

Q. All right: You overlooked that point yesterday when you were asked to point out all the places of oxidation?

A. I thought I mentioned that and two other places further west in connection with it.

Mr. Dickson: That is all.

Redirect examination.

Mr. Lindley:

Q. To bring out a little more clearly the situation on section-7, I will ask you if you have any notes made by you upon the ground, depicting the exact condition there, and also the relationship to section six?

A. Mr. Dickson: Section-7, we did not make any dispute about it.

Mr. Lindley: The witness mentioned five, six and seven, and this is necessary owing to its close proximity to seven, and it is simply making an explanation which I think is essential at this time.

Q. Did you make a graphic representation of that?

A. I did, yes.

711 Q. Have you that representation?

A. I have.

Q. Will you kindly mark that "Finch-10."

Mr. Dickson: "Finch R. D."—redirect.

Mr. Lindley: Redirect. Mark it "Finch R. D.-1."

A. (Witness marking exhibit.)

Q. And state what it purports to represent and how far from the extreme representation of the anticlinal there, is section six?

A. The map represents the workings on the 300 level the series of workings which were discussed just a few moments ago in connection with section seven and in connection with section six; it will be seen from the red markings upon the drawing which represent quartz, all this extends in solid quartz, where they are continuous with a great series of workings that have been made around section-7, and that the strike as starting from the southwesterly direction turns from a north and south direction, turned northeast; now the blue line shown upon the drawing is the Siebert Fault, and not named upon the drawing, and the prow or summit is a point where a south bend is made towards the eastward in the vicinity of raise 372, already mentioned, which I will mark upon the drawing. At the base of that raise is the solid massive body of quartz dipping towards the eastward, so that from the floor of the drift it is only a very short distance to section Six; and the position of the anticline, as shown in Section Six, is a projection of this very short interval from this very great and thoroughly developed mass of quartz, just to the west of it.

Mr. Dickson: That I understand is on the 300 level, that sketch?

712 A. Yes, it developed the end of the anticline on its strike, shows the relation of the cross section, because the cross sections are numbered at the outer edge of the plan map.

Mr. Lindley:

Q. Mr. Finch, now will you kindly put this block model together?

A. (Witness assembling block model.)

Q. Now, at the time the structure of this model and its surface was explained, did you call attention to the delineations and markings which are on its south side, purporting to show the structural conditions?

A. I did not.

Q. Will you kindly explain to the court the markings on each side and what they represent?

A. The design—the conventional design showing the rock formation around the edge of the uppermost blocks, is the design of the Fraction Dacite Breccia, and there is a green band marking the limit, as shown in this model; F. D. B. at various points is the symbol for the Fraction dacite breccia. When the topmost piece is taken off, all the Fraction dacite breccia is removed from the underlying rocks, and the rocks are represented in the model. It has been explained that the faulting by the Siebert fault has been eliminated in order to reconstruct the surface, which was buried by the Fraction dacite breccia. On the end of the model is shown a suggestion of the effect of the Siebert fault, the Fraction dacite breccia being brought down from its old surface below or to its present position, found in the ground, and the F. D. B. is found on the east end of the model,—over the Midway andesite, which is the older cap rock, that is marked by a cross hatched design and contains in various places the letters M. A. indicating Midway Andesite; the Siebert fault is indicated and named on the model, and underlying the Mid-
713 way Andesite is the lode porphyry marked M. T. for Mizpah trachyte. Underlying the vein on the east end is the glassy trachyte, marked "G. T."

Mr. Lindley: May I at this juncture call for the true specimen, used in the Winchell cross examination,—Winchell "X-6 and X-7" I think.

Mr. Evans: "Winchell X-2" is a glassy trachyte, and "Winchell X-3" is a plain trachyte or Mizpah trachyte.

Mr. Lindley:

Q. Calling your attention to the two specimens marked "Winchell X-2" and "Winchell X-3" will you kindly state what those rocks are?

A. The rock marked "Winchell X-2" is the glassy trachyte, which is shown under the vein at the extreme east end of those various main exhibits. It is a rock of very distinct characteristics; it has a banded structure in that region, a flow structure, which formed at the time when the rock was in a plastic condition. A distinction between the rocks is very easy for anybody to recognize, without any reference to mineralogy, crystallography, or any of those technical features. The Mizpah trachyte is the characteristic porphyry with the mineral scattered in it without the flow structure which shows so distinctly in the other rock,—much different.

Q. Referring to your model representing the line of demarcation between those two rocks, is that a distinct line or an obscure line?

A. It is a distinct line.

Q. Now, proceeding down,—you have explained the geology and geological relations and marks on the different sides,——

A. All except on the west side.

Q. Please explain that?

A. It is of interest to notice that passing from the northeast corner of the model we find the west end rhyolite underlying the
714 vein; that same rock is shown for the entire length of the model as the rock in contact with the Mizpah trachyte, and the vein forms along the contact; then on the northerly side of the model also, to which I am now pointing the Siebert fault is indicated, showing a layer of lode porphyry still remaining in the hanging wall under the fault, and the fault at all points along that north side at some distance away from the vein.

Q. Now, kindly remove the capping to expose the vein. I understand that that closing line shown on the model, formed by the block which you have just removed, is significant only in part of that structure?

A. It is intended only to fill in the corner here, to show the present surface, the essential parts of the model are those which are now on it,—the surface covered by Fraction Breccia, and the vein itself.

Q. Now, with reference to the vein as now exposed, showing the entire red coloring, I will invite your attention to what would be the northwest section of the vein as cut by the Fraction dacite breccia. With reference to the MacNamara stopes concerning which you were questioned by Judge Dickson, those stopes which lie to the extreme west of the MacNamara workings, and which are shown in the plane of the West End cross cut,—does that outline of the vein—how does the outline of the vein, as intersected by the Fraction Dacite Breccia on that model correspond with the outline of the stopes as shown upon the map?

A. Corresponds almost exactly because that is the line upon which the outcrop is based,—a series of points.

Q. Is that not a correct representation of the original edge or outcrop as shown through all the workings of the West End and MacNamara mine?

A. It is,—correct, so far——

[Page 715 of manuscript omitted in original transcript.]

716 Mr. Lindley: I think perhaps Mr. Uren would have more leisure.

Mr. Dickson: Well, Mr. Pierce on our side occupies about the same position on our side as Mr. Uren on your side.

Mr. Lindley: That is all.

Recross-examination.

Mr. Dickson:

Q. "Finch R. D.-1" simply represents the workings on the three hundred level?

A. Yes.

Q. Therefore are not intended and could not show the top or crust of the fold?

A. Yes, they do show it.

Q. Is the top of the fold encountered on the three hundred level?

A. Yes.

Q. Is that the top or the toe?

A. The same thing.

Q. Does the vein extend upward beyond the plane at that point?

A. Yes.

Q. Does this show the summit of the fold?

A. It shows the summit of the fold at the level on this map.

Q. But from that level the vein extends upwards does it not, to a summit?

A. As it extends up to the summit on other levels.

Q. At this level where you have that line marked "toe" does the vein not continue on upward beyond that level?

A. Yes, and downward.

Q. Well, maybe the court understand- that, I am sure I do not.

A. That is the summit of the anticline at that particular
717 horizontal plane.

Q. And yet when you get to the summit marked "toe" you go up the vein, higher up?

A. Yes, certainly. The summit I am referring to is something like this; you keep going up to higher elevations along the summit.

Q. You misunderstand the question. I ask you, directly above what you represent on this "Finch R. D.-1" directly above that does the vein continue upward?

A. Yes, the crest continues upward.

Mr. Lindley:

Q. Is this a cross section?

A. No, that is a plan map.

Q. I do not mean going westerly, but I asked what you called the crest, immediately where you have the "toe" indicated on "Finch R. D.-1,"—does the vein go on vertically above that?

A. No, except as stringers; the solid body of quartz has that form shown in the block model, the same as we have——

Q. The same as you have in the A-raises, in dimension?

A. Yes, somewhat.

Q. How thick are they?

A. I have not noticed the particular thickness.

Q. A half an inch, a quarter of an inch or what?

A. It might be that or more.

Q. It might be that or more, a half or a quarter of an inch?

A. Yes, in indefinite seams.

Q. What do you say that "Winchell X-2" is?
A. That is glassy trachyte.
Q. You heard his testimony?
A. Yes.
Q. And what would you say "Winchell X-3" is?
A. Mizpah trachyte.
Q. Or what we call the trachyte.
A. Yes.
718 Q. Do you know where those specimens came from?
A. No.
Q. You have not been told?
A. I think that I have, but I have forgotten.
Q. Are the stopes shown in the Ohio workings to which you referred, shown also upon the block model, exhibit-4?
A. Not all of them, no. No stopes are shown upon it, but the vein is represented up to these two stopes we were discussing this morning.
Q. Is the extreme westerly stoping which you speak of as shown by these Ohio workings, the vein or anything else shown——
A. As I remember without looking at the exact drawings from which the model was made, the westerly limit of it is about at the cross cut marked 300 West End, here.
Q. You speak of still a third one still west of that, some forty feet or more?
A. Yes; that is at the tip end of this main westerly cross-cut—running to the north.
Q. Not represented on the model?
A. No, not surveyed up,—it is being still driven.
Q. You say that the Fraction vein has a terminal edge. Give me the section that you referred to in direct examination, where you said that you had the Fraction vein in the top of Raise 5-A?
A. No section cuts the top of 5-A; there is some projection of it, it is shown on the model.

Mr. Lindley: Well, I want that section in the model the section that he drew.
Mr. Dickson: The one that he used in direct examination.
The Witness: Section No. 4 I think.
Mr. Lindley: That is identified how?

A. There are two sections one on each side of that raise, but the representation here is not far from the position of the top
719 of 5-A,—the Fraction vein.
Q. Well, I won't take the time now, but I will have you as soon—that is not what I have reference to. Did you make a sketch while you were underground?
A. I did.
Q. Get that sketch then? This is not the picture which I had in mind.
A. (Producing sketch.) Marked "Finch-2" and the B. part of the drawing.

Q. Is that raise to the right hand as we take the sketch, intended to be 5-A raise?

A. Yes, of course very roughly drawn.

Q. Yes. Point out what you intend to represent on this sketch as the Fraction vein?

A. This upper considerable representation in red.

Q. Having a curved effect?

A. Yes, it is very much that form in the ground.

Q. Does that unite with the quartz in the 5-A raise, as you follow up that raise?

A. There is a very considerable interval,——

Q. Does it connect with quartz in the north dipping vein, what we call the north dipping vein, as shown in that raise?

A. Not, according to my observation; I have some exact distances from which I might give you,——

Q. Does not the quartz which you represent there as being the Fraction vein, unite with the quartz in the south dipping vein, as shown in that raise 5-a?

A. No, sir, it does not. There is a little drag quartz.

Mr. Downer: You said a north dipping vein, Judge Dickson, you mean to say south dipping?

Mr. Dickson: I mean to say south.

A. No, it does not permit me to make a distinction. There
720 are fragments ground up quartz in the gouge of the Siebert Fault, come from we don't know where; the only possible connection of quartz that could be made would be along that gouge. There is an interval as I remember it,—I will give you the exact distance between that Fraction vein, and the next streak of quartz in place; then the statement will be definite. 97 feet measured along the raise to the Fraction vein.

Q. 97 feet from what?

A. From the bottom of it. From the bottom of the raise, 72 feet going down the raise—as you go to a point 72 feet from the bottom of it before you find the next quartz in place.

Q. But you have drag quartz in between?

A. Not any between, but along the gouge of the fault.

Q. You have drag quartz connecting the quartz in place in the north dipping vein, with what you call the Fraction vein?

A. They don't connect. The drag quartz was made at a period ages after the vein, and the stringers in place were formed.

Q. I am not asking for any explanation; I want the facts. Is there from the quartz in place in the north dipping vein up to the place where you have represented there the Fraction vein curving over, have we drag quartz, or any quartz of any kind, any place between?

A. Yes, the drag quartz can be found forming a part of the gouge.

Q. And that drag quartz you say, as I remember you in cross-examination before, they have come from some little stringers in the hanging country?

A. I don't think that there is any doubt but what it did.

Q. Or might have come from the Fraction vein?

721 A. Some of it undoubtedly did.

Q. How much of this block model—of the geology, by that I mean to include the Siebert fault, is represented from actual disclosures made by workings, and how much of it as a matter of inference or deduction by you from actual facts. We will take the easterly end of the block model; put on the other part of it there.

A. (Witness does so.)

Mr. Lindley: Did not you want him to put on the top, Judge.

Mr. Dickson: Yes, he has put it on.

Mr. Lindley: No, that is not the top.

The Witness: Do you want the other piece.

Mr. Dickson: Yes, you may put that on too. Now let me look at that east end. To what extent is the Siebert fault as shown on that surface or end of the model placed there from actual developments, and how much as a matter of deduction?

A. Its position and the form of it has very little conjecture in it. In this particular end of the model the actual points of development are only few, but extend out somewhat from the glass model. But very near the end of the model the Siebert Fault and its position, the amount of throw, all its features, is well shown.

Q. How far away from the east end of the block model?

A. Less than a hundred feet. In other words less than an inch on this model.

Q. Now this part of the model that I am now lifting off, is midway andesite, is it?

A. No that is fraction breccia.

Q. This is the fraction breccia.

A. Yes.

722 Q. The whole of it?

A. Yes, the whole of it.

Q. So that overlying—withdraw that—this M. A. here below that, is meant to indicate Midway Andesite?

A. Yes, the lower cap rock.

Q. And the M. T. below that is intended to represent what?

A. Mizpah trachyte.

Q. What we speak of as trachyte?

A. Yes.

Q. The same thing the same rock. I think that is all. One moment: Will you come to Plaintiff's exhibit One and indicate thereon the westerly extremity in full of the northerly and southerly course of the block model?

A. I should have. To do that exactly I should have to have the drawing from which the model was made. I can bring that in later and will be very glad to do so.

Q. Well, I will ask you to do that and also at the eastern extremity.

A. Yes.

Mr. Dickson: That is all.

The Court: You do make a distinction between Brougher Mountain dacite and the Fraction Dacite breccia, do you not?

A. Yes, I believe that they are certainly two different rock, but in the testimony in the case the terms have been used referring to the same body of rock in the mine.

The Court: That is all.

Mr. Dickson: I understand from Mr. Lindley, that your Honor has announced that you will go underground to visit this one place, with an expert on either side shortly after two o'clock.

Mr. Lindley: Well, shortly after the court adjourns.

Mr. Dickson: What time, your Honor?

723 The Court: Parctically any time that you gentlemen select. I have to leave for Goldfield at three thirty.

Mr. Lindley: Will your Honor fix the time?

The Court: Two o'clock.

Testimony of J. M. Fox, who being called and duly sworn as a witness on behalf of the Plaintiff, testified as follows, to wit.

Direct examination.

Mr. Lindley:

Q. Mr. Fox where do you reside?

A. In Tonopah.

Q. What is your occupation?

A. Mining engineer.

Q. Where are you at present employed?

A. At the Jim Butler.

Q. In your experience as a mining engineer have you had occasion to sample properties, sample mines?

A. Yes, sir.

Q. Have you made—taken any samples in the workings of the Jim Butler, the West End or MacNamara mines particularly, in rauses 2-A; 4-A; 5-A; 7-A, 200-A—200A, I understand is your A is that correct?

Mr. Alling: Yes.

Mr. Lindley: 302, 537, 569, 571, 573, 488 and 494: do you know where those raises are in the mine?

A. Yes, sir.

Q. Did you sample each one of those raises?

A. I did.

Q. I will ask you to state the manner in which those raises were sampled, presenting for your consideration a series of sheets

724 bound together and marked "Plaintiff's Exhibit No. 5." Let me mark this. I will ask you to state—I present here some bound sheets marked, "Plaintiff's exhibit No. 5," consisting of sheets numbered respectively from one to six.

Mr. Dickson: Each one is marked is it, Exhibit-5?

Mr. Lindley: The entire group is marked Exhibit-5 with the

supplemental 1, 2, 3, 4, 5 & 6 within in other words they should have been marked by letters but through a mistake they were marked by numbers, but this will be referred to as sheet No. 1 in exhibit-5. And state what those sheet- represent? Each one, what they represent?

A. Each one represents a series of cut samples taken in raise 569, intermediate 569, raise 488 and raise 537. The sheet shown a vertical section through these workings, and this here indicates the position in which the cuts were taken.

Q. Were these cuts taken at regular intervals?

A. In the majority of cases, yes.

Q. What intervals. State the manner in which that sampling was made through the raise? Was it made on the top, bottom or sides?

A. On the sides.

Q. On both sides?

A. On both sides. The series was not confined to either the east or the west side, samples being taken where——

Mr. Dickson: Is that true in the case of every sample they were taken from both sides?

A. No, sir. We alternated, there was no regularity.

Mr. Lindley: State the method you prusued with r-ference to the choice of sides where you only took on one side.

725 In taking the series along one side the side was determined by the exposure, in this particular case of quartz. The quartz was followed as closely as possible in all cases.

Q. In other words did you make any attempt to sample the best exposure at the point where the sample was taken?

A. Where there was definition to the foot *or* the hanging wall quartz, the sample was taken within those limits, at that interval. The interval of sampling though is not regulated to fit the exposure of the quartz.

Q. How much of a sample was take- at each point?

A. The weight.

Q. Well, across the side of the raise?

A. Well, the width varied from one to six or seven feet.

Q. Did you take samples of the entire extent from top to bottom?

A. Not *is* all cases.

Q. What was the general rule?

A. I followed the rule of taking the quartz where it was exposed.

Q. Taking the quartz where it was exposed?

A. Yes.

Q. On this sheet one of Exhibit five you have delineated—what did you do with those samples? How were those samples taken and what did you do with them, after you took them down?

A. The samples were taken with a hammer and moil put into a box, sacked, tagged, and sent to an assay office.

Q. Who was the assayer?

A. Mr. Calhoun of the Belmont.

Q. Did he subsequently make the assays?

—. —.

A. And did he report the results to you?

A. Yes.

Mr. Lindley: We will subsequently call the assayer.

Mr. Dickson: It is not necessary. Get his certificate that is all.

726 Mr. Lindley: You have a copy of the certificate there.

Mr. Dickson: I have no doubt but they are correct.

Mr. Lindley: I will ask you—I am handing you now a series of what purport to be assay certificates. "Plaintiff's Exhibit-6."

The Court: Before you go on may I ask one question?

Mr. Lindley: Yes, sir.

The Court:

Q. What is the meaning of the double pointed arrows, Mr. Fox?

A. That indicated the section of the working over which the sample was taken. For example, this would indicate that the sample had been taken from approximately this point to this, (indicating) a straight cut down the side of the raise.

Mr. Lindley:

Q. This Plaintiff's Exhibit-6, will you state what that purports to be? From whom you received it?

A. This is a list of the returns on the cut samples, taken by me, and the assays of which were made by C. A. Calhoun.

Q. Who is Mr. Calhoun?

A. Mr. Calhoun is the assayer at the Belmont mine. These sheets show the numbers of my samples, ounces gold, value per ton, ounces of silver, value per ton, and total value.

Q. What figure did you attach as the basis of valuing your silver?

A. Fifty cents.

Q. And gold?

A. Twenty dollars.

Q. Twenty dollars an ounce.

A. Yes, sir.

Q. State upon receipt of that certificate what you did to those assays, as to the tabulation of them on the sheets one to six, Plaintiff's Exhibit-5.

A. After receiving the returns from the assayer, each sample was platted as accurately as possible on these sections.

[Copy shows omission—disconnected.—Pr.]

727 opposite each point taken is given in the symbol outlined at the top of each the number of the sample, ounces of gold, ounces of silver, and total value, and below the line the width of the sample.

Mr. Dickson:

Q. Below it what?

A. The width of the sample.

Mr. Lindley:

Q. Then I understand that the first column to the left hand indicates the gold content?

A. Yes, sir.

Q. The next in order, the middle one of that series of figures is the silver content?

A. Yes.

Q. And the right is the figures in dollars and cents of the value per ton of the entire sample?

A. Yes.

Q. The number of the sample within the circle.

A. This indicates gold ounces, silver ounces, dollars per ton.

Mr. Dickson: I do not think that that is on my copy.

The Witness: Some of those prints are indistinct.

Mr. Lindley: They are all on there, Judge, gold, silver, dollars per ton (indicating).

Mr. Dickson: I see, I just wanted to understand it.

Mr. Lindley:

Q. That is the result of the assay in what raises?

A. Throughout my work?

Q. On sheet one?

A. Raises 569, 488 and 537. They lie on the plane of the same section approximately. They were placed in the same plane for clearness sake.

Q. Now as to sheet two of Plaintiff's exhibit-5, what does that represent?

The Court: Before you leave that Judge Lindley, what do you mean by the width of the sample?

728 A. I should say length, length would probably be more accurate. That is the actual length of the cut taken.

Mr. Lindley:

Q. Calling your attention now to sheet two of Plaintiff's exhibit-5, will you explain what that is and what method was pursued in regard to that?

A. The same method was pursued in regard to section two, which is an assay section of raise 571.

Mr. Dickson:

Q. Is that the same number on our model, does anybody know?

Mr. Lindley: I think it is.

Mr. Dickson: Well, point to your model and I can see.

Mr. Lindley: Are you familiar with this model. Point that out, Mr. Fox.

Mr. Dickson: Where is 571.

A. 671 (indicating.)

Mr. Dickson: That is correct. It is the same I guess.

Mr. Lindley: Proceed Mr. Fox. Sheet three is an assay section of raise 533, samples being taken in the same manner as 569, 571 and shown the samme way.

Q. Assayed as before by the same assayer?
A. Yes sir.
Q. And the certificate reported to you?
A. Yes, sir.
Q. And tabulated upon that sheet as you have explained with reference to sheet one?
A. Just the same.
Q. Just the same. The arrows indicating the same?
A. The arrows indicating the same—sections taken.
Q. And the width of the section, the value of the gold and silver and the total?
A. Yes.
Q. Are there any legends or marks or indication upon these sections that are required to be explained, other than those that you have stated?

729 A. Only this: In places where I have, in one section of the development work where I have taken two samples I have indicated by foot wall or hanging wall. This would indicate that this value of 3.50 applied to this section here, the hanging wall section. This one would indicate the value applied to this portion here, the 2.20. That occurs in several instances in each case both assays have been placed opposite the two cuts.

Q. Instead of taking an average you have given a separate valuation to each?
A. Yes.
Q. Separate on both sides?
A. No where I have taken one sample above another foot and hanging.
Q. Not from one side to the other?
A. Not from one side to the other.
Q. The foot and the hanging?
A. Foot and hanging.
Q. Now this was No. 3 of Plaintiff's exhibit 5, as you have explained is the assay plan of raise 573?
A. Yes.
Q. Sheet No. 4?
A. Sheet No. 4 is an assay section of raises 494, and 7-A. The under portion of this foot wall.

Mr. Dickson:

Q. How is 7-A indicated on that sheet?
A. I neglected to put the number on it.

Mr. Lindley: It shows here 7-A.

Mr. Dickson: Which is 494?
A. 494 is this section here (indicating).
Q. 7-A is from there up?
A. From there up.

Mr. Lindley: Shall we mark that judge.

Mr. Dickson: I think that he had better. Mark the 7-A part and then we will know.

Mr. Lindley: Mark the 7-A there.

(Witness does so.)

Mr. Lindley: Now you have explained all of the data that appears upon that, that requires explanation, that is the sheet 4 of
730 Plaintiff's exhibit No. 5?

A. With this one exception: In these two vertical raises, samples were taken in this direction, horizontal cuts across the south vein of each raise at this point.

Q. I suggest that you identify these two raises by numbers in the top of them, or in that place there. Those raises starting out from raise 494 are how numbered on the map?

A. I don't know. I will have to ask for information. In my work I called them A and B.

Mr. Lindley: They haven't got any number?

Mr. Siebert: No sir.

Mr. Lindley: Mark them A and B then. The lower one A and the upper one B.

Q. There are two raises extending up from the hanging wall of the 494 raise, now the arrow marks there indicates the place where the sample was taken?

A. Yes.

Q. And your line extended out indicates the valuation, the values?

A. Yes. Tying it into this section.

Q. Now is there any further explanation with reference to that sheet four?

A. No, I think not.

Q. I call your attention to sheet five, Plaintiff's Exhibit 5, and ask you what that purports to be?

A. Sheet five contains assay sections of raise 200-A, raise 302 and a raise whose name I do not know, but can locate.

Mr. Dickson: 200-A?

Mr. Lindley: That is your A, Judge.

Mr. Dickson: Well, I wanted the record to show that.

Mr. Lindley: Yes. West end of A.

Q. And this raise, this other raise starts from what level?

A. It starts from the 400 above plug 1413.

Q. Can you locate it on the model. Please locate it on
731 the model or on the plan, Plaintiff's exhibit 1.

A. This is the raise here (indicating).

Q. Identify that by the numbers.

A. 461.

Q. That would be raise 461.

Mr. Dickson: It is the first raise west of the McQuillan shaft.

Mr. Lindley: Yes.

Mr. Dickson: Is it?
A. Yes, sir, 461.

Mr. Lindley: Is that the first raise west of the McQuillan shaft?
A. That is the raise, yes; 461 is the raise.
Q. Have you finished with your explanation of sheet 5, Mr. Fox?
A. Yes.
Q. The sampling in all of these instances was taken in the same way?
A. Yes.
Q. Identified the same way?
A. Yes.
Q. Delivered to the same assayer?
A. Yes.
Q. Whose certificate you were furnished with?
A. Yes.
Q. And the result tabulated as in the previous cases?
A. Yes.
Q. Calling your attention now to sheet six of Plaintiff's Exhibit 5, I will ask you to explain what that purports to be?
A. Six, shows assay sections of raises 2-A, 4-A and 5-A.
Q. Those cross sections—where did you obtain these cross sections?
A. Of these three raises I detailed them myself, starting from known points, and making the detail myself for these. There are vertical sections looking north west.
Q. Well, those sheet-, with reference to those raises you have tabulated upon those sheet-, that shows the result of the assay
732 as handed you by the assayer?
A. Yes, sir.
Q. And the method of sampling: Was it the same as in the other cases?
A. The same in all cases.
Q. And the assays are tabulated the same, and in so far as sheet six of Plaintiff's exhibit 5 is concerned, there are no legends upon there other than those which you have already explained. If there are please explain to the court.
A. No, sir.
Q. The arrows indicate the same on this sheet as on the others?
A. Yes.
Q. And the other the same system of tabulation and notation of the results of the assays as followed in all sheets?
A. The same.
Q. That is correct is it?
A. Yes.

Mr. Lindley: Now, Judge Dickson, I offer this in evidence. Do you want me to bring the assayer?
Mr. Dickson: No I do not think that it is necessary I will consult with my associates, and if they think that it is necessary I will inform you.
Mr. Lindley: I simply want to avoid the necessity of bringing him into the court room.

Mr. Dickson: Well, I will let you know before the court convenes again. I will let you know this afternoon.

Mr. Lindley: All right. Cross examine.

733 Cross-examination.

Mr. Dickson:

Q. You took your samples of each of the raises and along each line of the workings that you did sample at arbitrary intervals of six feet?

A. Usually.

Q. Well, did you depart from that?

A. Only in a few cases.

Q. You were not seeking I take it in your sampling to get the best material that could be found, from point to point as you went up any of the raises?

A. I endeavored to give it as fair a cut as possible.

Q. Did you, while you were taking your samples at arbitrary intervals of six feet, did you in any cases include in your sample anything that you regarded as vein material, that was not in quartz?

A. That was not in quartz? I do not understand the question.

Q. Did you include anything in your samples thus taken arbitrarily taken, except quartz, or what you recognized as quartz?

A. Yes, I did.

Q. Did you do that very often?

A. Yes.

Q. Did you do that generally, take material that was not quartz and include that in your sample?

A. No, sir.

Q. What?

A. No, sir.

Q. Then perhaps you misunderstood me. Did you in any cases include in your sample material that you did not recognize as quartz but believed to be vein material, vein filling?

A. Where there was quartz exposed and I had an opportunity to sample it, the quartz alone was taken, but at certain of the sections in these raises and intermediates, there were stretches where
734 no quartz was in evidence, but we did it here at a six foot interval, sampling the material whether it was quartz or not.

Q. So that some of your samples would be none of it quartz?

A. Yes.

Q. Many of those?

A. Yes, quite a number.

Q. I do not suppose you could point out which of those were so taken? On the A sheet?

Mr. Lindley: Maybe he could.

Mr. Dickson: Well if he can.

Mr. Lindley: Try it. Perhaps he could.

Mr. Dickson: Can you specify the numbers, I do not want to take up too much time on it—which are taken wholly from material which you regarded as vein matter, but no part of which is quartz.

A. I did not understand the question that way in regard to determining it was vein material, yet not quartz.

Mr. Dickson: Vein filling.

A. I did not care to make that statement. I probably misunderstood you. What I endeavored to state was, that where quartz was lacking I still continued to sample *as* a six foot interval.

Q. And at such places, why, you would not have any quartz in your sample?

A. No quartz.

Q. That is what I mean. Calling your attention to a few numbers on sheet one, Plaintiff's Exhibit-5: Number—it is very indi-tinct, what is it, Mr. Fox 248?

A. They are poor prints; 248.

Q. The widch there samples was 6.8 feet.

A. 6.8 feet yes.

Q. Do you remember whether that was quartz or whether it was part of it quartz?

735 A. I could not say without consulting my notes, at that particular point,

Q. Do you know where this sample was taken whether it was taken on the side of the raise or bottom?

A. Yes, sir, it was taken down the side.

Q. Both sides or one side?

A. One side.

Q. And from top to bottom?

A. As indicated *in* the arrow. From approximately the hanging wall of the intermediate to the foot.

Q. Where you have these double arrows, let me understand a little more clearly, what are they intended to indicate?

A. At this point here——

Q. The same places—some places you have double arrows, and some places a single arrow.

A. Yes, at this point I took two samples, two cuts.

Q. One the same side?

A. On the same side. One extending from a point we will say there to there (indicating) with a width of nine tenths of a foot. That is a hanging wall sample. What I call the hanging wall sample. I continued down as a separate sample from the lower end of the first one to the foot wall, calling that the foot wall sample with a width of 2.8 feet.

Q. I see a number of the samples on sheet two which purports to be samples taken at raise 571. You have an indicated width as high in some instances as nine feet?

A. Not nine.

Q. No, I am mistaken about that.

Mr. Lindley: You were looking at it upside down.

Mr. Dickson: Well, six feet?

A. Yes, sir.

Q. Was that taken from top to bottom along the side of the raise?

A. What was the number of that?

Q. No. 272.

A. 272 that was taken down the side of the raise.

736 Q. From top to bottom?

A. From within a foot of the hanging wall to the foot.

Q. Do you remembee whether any of that sample was quartz, or just the material di-closed down the sides of the raise?

A. Some of that material was quartz.

Q. And how much of it, what proportion of it?

A. I could not say, unless I looked at my notes.

Mr. Dickson: I think that is all.

Mr. Lindley: That is all. One moment.

Redirect examination.

Mr. Lindley:

Q. I will ask you whether this method of sampling is the customary method in sampling a mine?

A. Yes, sir.

Q. The ordinary method of determining the values?

A. Yes, sir.

Recross-examination.

Mr. Dickson:

Q. The ordinary method when you want to ascertain the commercial value of the mine?

A. In general, yes.

Q. When you are seeking to ascertain the commercial value, that is the ordinary method?

A. Yes, sir.

Q. Not to show a vein tracing, that would not be the ordinary method would it, apart from any consideration of commercial value?

Mr. Lindley: Well, that is a question, of course, of opinion.

737 Mr. Dickson: Well if you were endeavoring to establish a vein tracing of the continuity of the vein from point to point, regardless of commercial values, would the method that you pursued be the correct one, in your judgment?

A. I think so, yes.

Q. Would it be the ordinary one according to your experience if you simply wanted to determine whether there was a continuity of the vein, regardless of commercial value?

A. Yes, I think so.

Mr. Dickson: That is all.

Mr. Lindley: That is all, Mr. Fox. I suppose, if your Honor please, we will adjourn until tomorrow morning at ten o'clock as usual.

The Court: The case is continued until tomorrow morning at ten o'clock.

738 Morning Session, Eighth Day.

Thursday, December 17th, 1914—ten o'clock a. m.

The Court: The Jim Butler Tonopah Mining Company, vs. the West End Consolidated Mining Company.

Mr. Lindley: Mr. Dickson, when Mr. Finch was on the stand, you asked him to locate the position of that block model.

Mr. Dickson: Yes.

Mr. Lindley: Do you think that he had better take the stand first.

Mr. Dickson: No, I think not. The model is fixed by the fact that the West End claim is located upon it. That is all that is necessary.

Mr. Lindley: Very well.

Testimony of FRED J. SIEBERT, who being called and duly sworn as a witness on behalf of the Plaintiff, testified as follows, to wit.

Direct examination.

Mr. Lindley:

Q. Mr. Siebert, what is your full name?

A. Fred J. Siebert.

Q. Where do you reside?

A. Tonopah, at present.

739 Q. And prior to residing at Tonopah?

A. Reno.

Q. In this state?

A. Yes.

Q. What is your profession?

A. Mining.

Q. How long have you been engaged in that occupation?

A. A little over sixteen years.

Q. Before starting out in life did you have any preliminary collegiate training?

A. I did, but not in mining, except that at college I studied chemistry, physics, geology, mathematics and things of that sort which pertain to the profession of mining engineer.

Q. How long were you at college?

A. About three years.

Q. What college?

A. Ohio State University.

Q. How long have you been engaged in the active practice of the mining business,—in contact with it?

A. Every since I came to Nevada, and I arrived in Nevada the first day of December, 1898.

Q. Where have you held down that business and in what capacity?

A. Arriving in Austin, at the time that I have mentioned, I prospected for a few months, in connection with Governor Oddie, and after that, I think in February 1899, I took a lease on the Gold Park mine with three other partners, and we worked this lease for about six months.

Q. Where was this property situated?

A. About forty miles southwest of Austin; while we were leasing on this property I did the assaying, which I had learned in Austin under Professor Gayheart, and ran the mill on one shift, besides doing such other things around the property as were necessary,—some surveying, and also helping in the mine, when I had nothing else to do. After this lease terminated I returned to Austin, and in connection with Governor Oddie we formed a small develop-
740 ment company known as "The Pacific Mining & Development company" and with some little backing that we had we started to prospect and look for properties. We were unsuccessful in finding anything satisfactory, and about February, 1900, after we were both out of funds, I went to Bingham, Utah, where I succeeded in getting employment with the Dalton & Lark Mining Company.

Q. In what capacity?

A. My first job at the Dalton & Lark, was driving a mule team hauling coal to the mine on the tramway. I then succeeded in getting underground as a trammer, and was successively and within a few months, pumpman, and then shift boss, and had been appointed Superintendent, but about this time the mine closed down; that was in the fall of 1900. I went from there to Salt Lake City, and did some examination work for Mr. W. A. Cartan.

Q. Examination of mine.

A. Yes. It was only for two or three months. I think that it was in December 1900 that I went to Park City, Utah, and took employment in the Silver King Mill, under the promise from J. B. Fleming the Engineer of the property that I would be made Foreman of Construction, as soon as it was started; I remained in the mill for about two months, and then was appointed Foreman of Construction on work covering the construction of tramway of the Silver King Company, connecting the mine with the Railway, also the construction of a sampling mill, the terminals of the tramway, and a lot of incidental construction work.

741 I finished with this in September, 1901, and then was employed at the Quincy Mine, installing first an electric lighting system, and some other improvements around the mines.

In October, I think it was the latter part of October or early part of November, I was employed by Judge Dickson and his associates to come to Tonopah as the Superintendent of the Tonopah Salt Lake Mining Company, and also of a claim which they owned personally called the Lucky Jim, which is now the principal claim of the Montana Tonopah Company.

In December, 1901, I was offered a position as Superintendent and engineer for the Tonopah Mining Company, which I accepted, taking effect the 1st of January, 1903.

The Court:

(Q.) 1902?

A. 1902. I was then Superintendent and engineer for the Tonopah Mining Company from that time on until my resignation was accepted in May, either April or May, I forget which, 1904. I also

had charge of the Tonopah Belmont Development Company, the Tonopah Fraction Mining Company, the Gold Hill Mining Company; both of the last two named companies are now a part of the Jim Butler Mining Company.

A. I forget just when my employment started with the Tonopah Belmont, but it started with the first work that they did after forming the Company. My employment with the Tonopah Fraction Company started some time toward the end of my stay in Tonopah, and after Mr. Curtis had resigned as manager.

Mr. Lindley:

(Q.) Now, just briefly follow up the places where you have
742 since carried on your activities and exclusively in a mining line.

A. After leaving Tonopah I was in New York for some months, making trips from there for Mr. John Hays Hammond on mining examinations, and then decided to locate in Los Angeles and engage in private practice. I went to Los Angeles about May, 1904, and opened an office.

Q. Well, the details of the dates are not particularly material, I think, Mr. Siebert; If you will just give us generally your experience, in what capacities, in actual mining operations. , Mere dates are not *are not* material, it is the extent of your practical contact with mining work that is important. Just a brief resume.

A. After leaving Tonopah, and until I returned to Goldfield in 1907, I examined mines in various parts of Mexico, in all the western states with the exception of Colorado, also in British Columbia.

Q. Examined them for what purpose?

A. For the purpose of purchase principally, or to advise the owners as to operations. I returned to Goldfield in July, 1907, and was employed by Mr. George Wingfield to look after some leases there which he was interested in, and which were heavy producers.

After these leases had expired, I was employed by Mr. Wingfield in making examination of mines with the view to purchase, and finally, in 1908, he appointed me his consulting engineer for all companies with which he was connected, with the exception of the Goldfield Consolidated.

I remained in this position until April, of this year, when I came to Tonopah to engage in an examination of the West End
743 and Jim Butler properties, to ascertain the conditions with regard to geology and for the purposes of this suit.

Q. You have made an examination of the workings of the MacNamara, West End and Jim Butler, and to some extent the adjoining property?

A. I have.

Q. How long have you been engaged in that examination?

A. I first came here in April, I think, about the 14th, and was here continuously until the latter part of June, when I went east, and returned here the 1st of August.

Q. Well, about how long in months have you been engaged in the

study of these mines? Approximately six months, or five months?

A. About seven.

Q. Seven months.

A. I have not been engaged continuously for seven months, but the majority of the time I have been engaged.

Q. And as the result of that examination, have you made yourself familiar with the conditions as exhibited in the workings in these mines so as to be able to state what veins are situated therein, and how they are situated?

A. Yes, sir.

Q. How many veins do you find in the property known as the West End?

A. I have not examined the lower contact vein, as it is called, but outside of that I consider that there are 3 veins.

Q. Name them.

A. The Fraction vein, the south vein, and what is called
744 the West End MacNamara vein.

Q. How long have you known that vein to have been called by that name?

A. Originally; when the vein was first struck, it was called the big flat vein.

Q. And what have you known it as since? The MacNamara West End?

A. I never heard any other name for it until about 1904 or '05, when they began to call it the West End MacNamara vein.

Q. Well now, confining yourself for the time being to the MacNamara West End vein, I wish you would describe that vein generally, where it is found in the works, its character-stics, and the result of your observations as to its position in the ground within the works of the West End, the MacNamara and the Jim Butler?

A. You wish me to use the model to illustrate that?

Q. I am first asking now for a general description of the vein?

A. The vein is what might be termed a contact fissure vein. It is rather flat and rolling, with a general dip in a south easterly direction and with a north easterly trend. It occupies contacts throughout most of its extent, but is, in some cases, a fissure vein in the Mizpah trachyte.

The principal contact rocks upon which this vein lies are west end rhyolite in the foot wall, and Mizpah trachyte in the hanging wall. In some places, particularly in the eastern portion of the West End claim and in the Western portion of the Valley View claim, belonging to the Tonopah Mining Company, the foot wall rock is a glassy trachyte. At other points, the Mizpah trachyte is found in
745 the foot wall, and very rarely the rock known as Montana breccia is found in the foot wall.

The vein is probably the most extensive in area of any vein in Tonopah, and is traceable from a point in the Curtis claim of the Jim Butler Company, through the Eureka claim belonging to the same company, through the West End claim of the West End Company, and through the MacNamara ground, into the Tonopah Extension Company property.

746 Q. In any other direction is the vein traceable?

A. It is traceable towards the east and northeast in the property of the Tonopah Mining Company, and it is traceable also towards the northwest in the California claim, which formerly belonged to the Ohio-Tonopah Company. If it has any further northern *extrations* I am not acquainted with them, further than those I have described.

Q. Where, in what particular section of the veins, as you have described it is the most extensive development?

A. Within the boundaries of the West End claim. And within the MacNamara ground.

Q. In which direction, from this area?

A. In which direction?

Q. Yes.

A. Northerly and southerly.

Mr. Dickson: Just read the question.

(Question read.)

Mr. Lindley: The question was a little bit confused, and I possibly did not have an adequate notion myself about the question.

Q. Now, this vein has been exposed, as I understand it, in the various underground workings, as shown on the model, Plaintiff's Exhibit-2"?

A. Yes.

Q. Now, you are aware that in this case there is a discussion or controversy as to whether this exposure in the MacNamara and West End vein, constitutes two veins or one vein?

A. Yes.

Q. What is your judgment in regard to that?

A. My judgment is that it is an anticlinal vein in this vicinity, and locally dips in both directions, the axis of the anticline running in a general easterly direction, I think about south 80 degrees east, from the eastern end line of the West End claim to a point approximately 1140 feet, crossing the northerly sideline of the West End claim, at that point.

747 Q. You are describing the course of what you understand,——

A. The axis of the anticline.

Q. Now, I wish that you would take that vein, as you say it is from the southerly workings of the West End into the different Raises, and the different places where you have identified it, up to the crest of the anticline, and over, and state when you reach the crest of the anticline, the conditions that you find there and the reasons for your deductions, whether it is one anticlinal vein—and proceed as rapidly as you can Mr. Siebert?

A. Starting at its lowest exposure in the bottom of winze 664 following up this winze to the six hundred level, and then continuing up Raise 664 to an intermediate, and on up to the 500 foot level, the vein is continuous; at this point, or a little east of this point it shows a juncture with what we have designated as a south vein; from that point, as is shown on the model, we can go up through the stopes

continuously from the 500, crossing over towards the eastward and run up into the 400 level. At this point there is some interruption in the development work, and we are compelled to go further east on the same vein in order to follow it up; we pass back into what is called the footwall cross cut, and by coming out to raise 464, which is a vertical raise going back to the vein, we find the vein again in place, and from that follow it downward to a point about thirty feet up in raise 484, thus proving it- continuity throughout that area.

Passing up through the stopes and raises into the 300 level and following the vein eastward for a short distance, we come to another raise which allows us to go into the stopes between the 300
748 and 200, known as stope Five, passing through this up to the 200 foot level, through continuous stopes and on up, past the intermediates, to what is known as the MacNamara stope in which Raise-A is located.

Q. Now, I apprehend Mr. Siebert, that we will admit on both sides the continuity of this vein from the lower workings up to what we call the crest of the anticline, and if you will now take the conditions as they appear, along what we claim to be the crest of the anticline in the different Raises, and what they claim to be the union of two veins, and take the successive point along that line, it will save the necessity of following up all of these stopes. Commencing at the MacNamara stope,—commencing with the development work at that point state the appearance as you find out each point where there is an exposure of what we call the axis of the anticline.

A. In the MacNamara stope,——

Q. Now, I believe that it is accepted that that is continuous in the lower workings.

Mr. Dickson: On both sides. I suppose that there was no question about it.

Mr. Lindley: Well, you may proceed Mr. Siebert.

A. In the MacNamara stope before the defendant had started any raises there, the hanging wall was absolutely smooth and unbroken, showing the roll from south to north, over the crest of this anticline; it was as perfect a hanging wall as I ever saw anywhere, or a hanging-wall streak, I should say, because there is a stringer section above what we have always termed the stope streak or hanging wall of the commercial ore; this hanging wall is exposed along the axis of the anticline of this section for something over one hundred feet. The next exposure of a roll is best,——

749 Q. Just at that point let me ask you a question: Is there anything to indicate on this roll where there is a change from a southerly to a northerly dip, any parting or line of demarcation?

A. There is no line of demarcation whatever, of any character except a change in the direction of the dip.

Q. Is that a gradual or abrupt dip at this particular point?

A. It is gradual, changing from a dip thirty degrees south, to a dip of about thirty degrees north.

Q. Now you may proceed with your explanation,—you say that

there is a stringer section, what you call a stringer section, over the anticline?

A. Yes.

Q. What does that stringer section consist of, will you describe it.

A. It consist- of stringers some of them a fair size most of them rather small, inconspicuous, running at various angles, dipping in various directions, just a mass of stringers, in some cases, more often though widely separated, as you go away from the hagning wall of the vein.

750 Q. How about the character of the ore in the stopes, or in the vein below the stringer section?

A. There is no noticeable difference.

Q. As to the quartz?

A. The quartz is the same practically.

Q. Well, what are the widths of these stopes?

A. Just at that point, I should say they would average 4 feet, right near the crest of the anticline, and widening out going down in both directions.

Q. Well, now, you may proceed with the description of the appearances as they are shown in the workings of what you call the crest of the anticline, taking up the various points in the order of succession from west to east?

A. Following down the axis of the anticline, the roll is again shown in raise 258, which is very near its crest.

Mr. Dickson:

(Q.) Point to it, please.

A. Raise 258.

Q. I say point to it so the Judge can see, if you will.

A. Which is near its crest on its southerly dip (indicating).

Mr. Lindley:

(Q.) You must not get between the Court and the model, Mr. Siebert.

A. I think the actual top of the anticline is shown very near raise 250. The next exposure that is near the nose or toe of the anticline is in the 200 foot level, at about the point I indicate.

Mr. Dickson: Give it a name.

A. It is not marked on the model.

Q. Well, designate it; fix it approximately, as you can, with reference to some workings which are on the model.

A. It is just easterly of a station marked 258 S. W. on

751 Plaintiff's exhibit 1.

Q. 258 S. W.?

A. Yes sir.

Mr. Lindley:

(Q.) Well, proceed, Mr. Siebert.

A. On the 300 foot level the actual apex or top of the anticline is not shown exactly, but it is very close to a point directly over raise 302 A, and in raise 366.

Q. Well, at these different points where you say the crest of this anticline is, is there one or two veins?

A. One vein.

Q. With different dips?

A. It is the crest of the anticline.

Q. And dips in both directions?

A. Dips both northerly and southerly.

Q. Proceed to the next point.

A. The next very good exposure is in raise 494. Raise 494 starts on the 400 level of the West End, and continues up along the vein to a point marked 1392—station 1392. Just beyond this station it is shown that there are two strands of the vein; what we call the foot wall strand and the hanging wall strand. Their point of juncture is just beyond the station I have mentioned.

Q. Where is this, along the summit of the anticline, or down below the summit?

A. This is below the summit of the anticline, where the vein is dipping northerly. We have just recently done some development work on the foot wall strand, or lower portion of the vein to prove its continuity over the roll.

Q. Well, what was the result of that work?

752 A. On this mode- the actual connection is not shown, but it was made day before yesterday. It is on solid quartz right straight through to stope B, and in stope B, the anticlinal roll is shown and you can plainly see it starting on its southerly dip.

Q. Who ran stope B? Who made stope B?

A. Stope B was made by the Defendant Company.

Q. The West End Company?

A. Yes sir. In order to prove the continuity of the upward strand over this anticlinal roll, raise 494 was continued on up connecting with their stope A which was also made by the Defendant, the West End Company. From this raise 2 short vertical raises were put up, and in both of these the vein was proven to be a continuation of the upper strand of the northerly dipping vein.

Q. Showing what?

A. Showing continuity.

Q. As one vein?

A. As two strands of one vein, the upper strand——

Q. And lower strand?

A. Being a part of the lower strand really, and joining it at a point near station 1392.

Q. Where was the crest of the anticline with reference to these two strands?

A. Following on up the raise 494 we come to the crest of the anticline at a point opposite the bottom of 7 A raise, and distant probably 15 feet north. From that point, the upper strand takes a southerly dip and rejoins the lower strand again at rather a steep angle in—the number of that working is not marked on here, but it comes back——

753 Mr. Dickson:

(Q.) You say in the bottom of this raise; what is that?

A. It is a portion of the workings in stope B. And from there it is clearly continuous back to the 400 level of the West End claim, where it has its southerly dip.

Mr. Lindley:

(Q.) I call your attention to Plaintiff's Exhibit section 4; state whether or no this indicates the place where you have just described?

A. That indicates the conditions which I have just described.

Q. Showing the actual connection of two strands; that shows it makes a connection here with the lower streak?

A. Yes sir. But the connection has not been actually driven for a short distance between the top of A stope, and this short level in B stope. There is an intervening gap there of a few feet. The vein, however, a slight distance towards the east is actually continuous and developed.

Q. When you speak of continuous, do you mean continuous from a north dip to a south dip?

A. Yes sir.

Q. Proceed.

A. The next evidence of the anticline is found in raise 496, which is almost a duplicate of 494, except that in one portion of it the Siebert fault has sliced off some of the quartz, not all of it however.

It starts from the 400 level and continues through on quartz up to the B level, and is connected through with the stopes of the B level from where they show a northerly dip to where they
754 show a strong southerly dip. The connections through on B, I might remark, are almost flat in the center, but at each of the edges show the changes of the dip.

Continuing on up raise 496, we come again into the A stope, or the stope on the upper strand of the vein at this point. Just beyond the head of raise 496, this upper strand takes a very strong southerly dip, and is continuous back to B level, where it again rejoins the lower strand, and then the two together unite and are found on the 400 foot level.

The nose of the anticline is developed again to the east on the 400 level where the drifts follow it in an easterly direction and around over its top. This point is probably, the axis of the anticline, or top of the anticline at this point is about 40 feet southeast of the McQuillan shaft. From there going easterly we go into the stringer section, which is found in the hanging wall of the anticlinal roll, on quartz where *is* has not been cut off by the Siebert fault.

Going further to the east, to raise 573 which has been developed on continuous quartz from stope 16 upward, where the vein dips northerly, to a point almost directly under the main 400 foot level of the West End Company, where it reaches the anticlinal roll and starts on its southerly dip.

Mr. Dickson:

(Q.) You mean northerly?

A. Or northerly dip. It has been developed from the top of this roll continuously on the vein for 80 or 90 feet on its northerly dip.

Mr. Lindley:

(Q.) Is the change in direction on the top of this roll abrupt, or gradual?

755 A. Gradual, very gradual at this point.

Q. Proceed, Mr. Siebert.

A. The next exposure of the crest of the anticline is in raise 571, which comes up from the same stope-16, from where the vein is on its southerly dip; the crest or top of the anticline at this point is again almost directly under the main drift of the 400 level of the West End company, and from that point onward is continued approximately 100 feet on its northerly dip. In raise 569 we find somewhat similar conditions; we follow up from stope 16, where the vein has a southerly dip to its crest, which is again almost directly under the main drift of the 400 foot level, of the West End, and starts on its southerly dip; at this point however it is quite flat for some distance before it begins to turn down on its northerly dip; in this immediate section in the hanging wall of the main anticlinal roll is a very strong stringer section, but most of the heavier stringers, I believe, do the same as the quartz found in the A-stopes, and curl over and rejoin the main body.

Q. You have now traced that anticline, have you, from the point to the east as far as it is shown in the workings?

A. Yes.

Q. I understood at one point in your testimony, when you were describing the conditions of this anticline in the middle region, referring to the toe of the anticline,—what did you mean?

A. I meant at the point on any one level where the drift naturally in following around the anticline would form a toe or prow.

Q. There has been something in the testimony referring to the toe at the extreme east end, you had no reference to that; that is a local toe that you have reference to in your description?

A. Yes. It was the one about forty feet southeast of the McQuillan shaft, where it is very nicely developed.

756 Q. Now, you speak of the Siebert Fault. Do you know how that fault came to be named the Siebert fault?

A. Mr. Spurr named it the Siebert Fault.

Q. Are you familiar with the position of that Fault in the ground, and the different exposures where it is observable, have you traced it through the workings to any extent?

A. I was very well acquainted with it when I was with the Tonopah Mining Company.

Q. Are you familiar enough with it now so as to state its position, and its relation to the vein in controversy, and the underground workings of the two mines?

A. Yes.

Q. If so, you may take up the Siebert Fault and explain what its position is, where it lies, and its relationship to the vein, and what it has done or what it does.

A. Starting from the eastern end of the West End claim, we find the fault at its highest point in a raise known as 420, from the 400 level workings of the Jim Butler,—right in the top of this raise, Judge, it is not marked on here as it should be; it is near the top, down probably twenty feet from the top.

Q. Proceed with your description of the position of that fault?

A. It is next found in raise 488, and shows from top to bottom of that raise; it has been drifted along in the 400 foot level of the West End company from this point, for approximately two hundred and fifty feet, and is well exposed; it shows again in raise 461, approximately forty feet and again in a connection between the 400 foot level and 573 raise.

Q. Proceed, Mr. Siebert.

A. It shows again in the top of the vertical portion of the
757 496 raise from the 400 foot level of the West End, and again about half way up 496 raise, between—half way between the B-stope and the A-stope. From this point it is continuous upward over the hanging wall portion of A-stope and tangent at this point to the hanging wall of the stope; it has then been followed upward in Raises 2-A, 4-A, 5-A, 6-A and 7-4; it also shows in the two small vertical raises, from raise 494, which I think were lettered yesterday A. and B.; continuing on to the westward it shows at the foot of raise—it is not marked on that,—at a raise starting at a point very near station 1220-A.

Mr. Dickson:

Q. On Plaintiff's Exhibit 1?

A. On Plaintiff's Exhibit 1, yes. It shows again in a cross cut of the Tonopah Mining Company on their 500 foot level.

Mr. Dickson:

Q. Just indicate that please.

A. Right there, yes.

Mr. Dickson:

Q. What cross cut is that, 500 cross cut?

A. That is all the mark on it, Judge; 500 Tonopah Mining Cross cut; they call that the Red Plume connection; it shows again very prominently in the MacNamara workings.

Mr. Dickson:

Q. At what point?

A. At the point which I am indicating and which is near station T-17.

Mr. Dickson:

Q. On exhibit 1, so that the record will show?

A. On exhibit One.

Mr. Dickson: That is here?

A. Yes, on its upward course it again shows in the easterly portion of MacNamara stope No. 14. It against shows very markedly on

the 300 level of the West End company in cross cuts 303, and at a short point west of there, raise 366 practically follows along
758 under it up to the 200 foot level of the West End, from there is can be followed upward in raise 260.

759 Q. Is that 262 or 260?

A. It is marked 260 here. Coming further west, it is found in raise 258. A little further west than that, raise 252, which I believe is raise 152 on the Plaintiff's model.

Q. On the Plaintiff's model?

A. Or the Defendant's model. Follows along under it almost all of the way to its top. It is found at a point northerly from this in the 200 level of the MacNamara, over the lower portion of the stope 7.

The Court:

(Q.) Point to it.

A. We have stope 7 here. This is the lower portion of stope 7 (indicating). It is found again in raise A, or 200 A, as we have always called it.

Mr. Dickson:

(Q.) It is raise A on the Defendant's model?

A. Yes sir.

Mr. Lindley:

(Q.) Isn't that the farthest western exposure?

A. That is about the farthest western exposure, yes sir.

Q. What is the general shape of that fault? Can you give it any general disignation so as to illustrate it?

A. It is a trough shaped fault, dipping in a general way from west to east, or rather to the north east a little bit.

Q. To what extent, if at all, is it in contact with the vein?

A. It is generally tangent to the upper portion of the anticline.

Q. What do you mean by the upper portion?

A. The top or crest.

760 Q. Well, what do you mean, that portion? Describe that portion of the vein to which this is tangent?

A. It is tangent to the top or crest, where it starts on its northerly dip.

Q. Well, I understood you to define the vein as lying on this anticline, and a condition of stringer section above the anticline?

A. Yes sir.

Q. Does the fault—now, with reference to this stringer section, where is the fault?

A. The fault lies directly on the more solid bodies of quartz, and cuts through the stringer sections.

Q. Cuts through the stringer sections?

A. Yes sir.

Q. What is the condition in raise 569?

A. You mean with reference to the fault?

Q. Yes sir.

Q. Directly over raise 569, we have raise 488 and we do not see

the fault again towards the north, indicating that on its northerly dip it must flatten out. If it had continued its dip, as shown in raise 488, it would have before now been exposed in either raise 569 or in raise 537.

Q. At that point, does the fault cut the stringer section, or cut the main body of the ore below?

A. It does not cut the main body of the ore in that section.

Q. Now, with reference to the hanging wall of the south and north dipping veins, what is the position of the foot wall of tha- fault, as to coincidence for any distance, or at all, or in what
761 direction, and in which direction does the fault move or go from the vein, if it goes from the vein?

A. At the points which I have mentioned, the fault being tangent to the hanging wall of the north dipping limb, it is practically coincident with the hanging wall of the north dipping limb. But in a northerly direction, the fault leaves the hanging wall of the north dipping limb and takes a position above it; at some points as much as 60 and 80 feet above it.

Q. Now, what is the character of the walls of the fault?

A. I could not catch that, Judge.

Q. What is the character of the walls of the fault with reference to the presence or absence of gouge?

A. The fault shows a great deal of gouge, different in character with the rock through which it is passed.

Q. Well, it is a marked, pronounced gouge?

A. It is very pronounced, and particularly where it passes through or is in contact with Midway andesite, which is a very soft rock, there is an enormous amount of gouge.

Q. Well, with reference to the vein itself, the West End Mac-Namara vein, both as to the north dipping and south dipping, what is the character of the hanging wall of those veins, with reference to partings or gouge, if any?

A. So far as I have been able to observe, where they are not coincident with faults, the hanging wall of each leg of the anticline is similar.

Q. Well, how does it compare as to gouge with the gouge in the fault where you are away from the fault?

762 A. There is usually a small amount of gouge on what we called the stope streak.

Mr. Dickson:

(Q.) Called what?

A. The stope streak which is the usual limit of commercial ore.

Mr. Lindley:

(Q.) And above this streak, I understand you, there is a certain zone called what?

A. The stringer zone.

Q. And as a rule, is that the zone that is cut by the fault, or scored by the fault at different points, that stringer zone?

A. Yes sir. The fault, as a rule, cuts through the stringer zone.

Q. Is there any difference between the quartz or vein filling of the north leg and the south leg of this vein?

A. Not that I have observed.

Q. Now, with reference to the western terminus of this vein, it terminates abruptly, doesn't it, or how does it terminate, and up against what?

A. It terminates against a formation called Fraction dacite breccia.

Q. Is that the usual name given to that rock in the camp here, do you know?

A. Yes sir.

Mr. Dickson: Well, we object to that. Let him designate it himself.

Mr. Lindley:

(Q.) Well, what is that rock popularly known as in the camp?

A. Fraction dacite breccia.

Q. Now, you say what becomes of that vein on its westerly
763 course?

A. It terminates against this Fraction dacite breccia.

Q. Explain the appearance of the vein where it terminates against this Fraction dacite breccia?

A. The termination of the vein is rather abrupt, though not so abrupt as it would be if it had been caused by faulting. Beyond the termination of the vein in place, float is found, or pieces of scattered rock, scattered quartz, vein material within and inclosed by the Fraction dacite breccia.

Q. Now, what is the appearance of the vein material, the quartz butting up against this Fraction dacite breccia, and I wish you would explain that quite fully? Have you taken some samples of this, Mr. Siebert?

A. Yes sir, I have, but I forgot to bring them into Court this morning. They are in my office *is* a canvass sack on a table in the back room, Mr. Finch, if you want to telephone for them.

Q. Where is your office, down town?

A. Yes, sir, the Butler office.

Q. Well, I think we had better go on and you can bring those in later. Well, now, describe the appearance of the quartz along the line of this contact with the Fraction dacite breccia, and explain to the Court just what it looks like, and to what extent, if there is a difference in its character or appearance along the plane of the contact, to what extent, if any, it extends in on the vein away from the contact?

764 A. Approaching this contact from the east, and as you near it in distances varying from——

Mr. Dickson: Contact what?

A. Approaching it from the east in distances varying from 200 feet to as low as thirty or forty feet, the vein begins to show signs of oxidation which increase as you approach the actual contact, where in most places it is quite heavily oxidized.

Q. To what is that oxidization, or oxidation, I presume is the modern term,—oxidation due? How do you account for it?

A. Apparently to weathering of an old extensive surface outcrop.

Q. Have you compared this rock, which you say that you have taken along the plane of contact, and which you say the oxidation of it — due to the surface exposure,—due to an ancient outcrop, have you compared that with other outcrops in the camp?

A. Yes, I have.

Q. Do these samples show the two outcrops?

A. Those are samples which I referred to a few moments ago, and which I forgot to bring to court.

Q. Can you explain the character of material which is shown in the series of raises, above the stope marked on Plaintiff's models, as 2-*a*, 4-A, 5-A, 6-A and 7-A?

A. Yes, these raises as I have explained before, all follow along under the Siebert fault on its upward extension, and cut through the stringer zone, which forms a fringe over the hanging wall of the West End—MacNamara vein; the quartz that is found in these raises is disconnected, that is in the sense that it does not form a solid body of quartz; there are stringers running in every direction, which decrease in size and number also, as you leave the vicinity of the top or roll of the crest. These stringers running as I say in almost every direction, some of them are bound to be more or less
765 parallel to the dip of the fault, but they are not continuous. They are also found in the gouge of the fault and immediately under it round pebbles of quartz or drag ore, as it is called.

Q. These rounded pebbles are accounted for in what way?

A. By the grinding action of the fault.

Q. You spoke of this vein as a contact fissure vein.

Mr. Dickson: He has not so spoken of it as yet. Other witnesses have, but not this witness.

Mr. Lindley: Well, you have forgotten, or else you did not hear, Judge.

Mr. Dickson: It might be.

Mr. Lindley:

Q. Did you, or did you not describe this vein as a contact fissure vein?

A. I did describe it as a contact fissure vein.

Mr. Dickson: Well, I do not pretend to be infallible, it is something which I missed.

Mr. Lindley: Well, now we will get another start.

Q. To what extent throughout the area of this vein with which your are familiar, is it a contact vein?

A. I have never figured it out in precentages.

Q. That is, throughout the known area of the vein?

A. Yes, I know. I should say approximately that seventy five percent of the vein lies in contact.

Q. In that answer do you confine yourself to the West End-MacNamara-Jim Butler area, or are you taking the entire area of the vein outside into consideration also?

A. In making that estimate I did not consider the portion in the Tonopah Mining Company, which might increase it a little bit.

Q. Well, now, what is this contact; is it the same throughout the entire mine, that is, the overlying mineral rock is the same,

766 or is there a change in the contact rock?

A. There are several changes in the contact.

Q. Just generally describe the different kinds of contact in which the vein lies?

A. Towards the eastern portion of the West End claim the contact is between Mizpah Trachyte and glassy trachyte, the Mizpah trachyte forming the hanging wall and the glassy trachyte the foot wall. That condition only exists for about 175 feet westerly from the east end line, and beyond that the contact is formed between Mizpah trachyte and the West End rhyolite. This condition exists some little distance west of the Corkhill shaft.

Mr. Dickson:

Q. What is that?

A. The Corkhill shaft.

Mr. Lindley: The Corkhill shaft,—you call it the West End shaft.

A. The vein becomes a fissure in the Mizpah trachyte, except on its northern dip, and in the MacNamara ground it continues to be contact between West End rhyolite and West End rhyolite, until almost to its western terminus, as far as developed. I might add that another point locally due to faulting or erosion that at times the Midway andesite or the Fraction dacite breccia may rest directly on the vein.

Q. I wish to call your attention to Plaintiff's section-12, with reference to the position of those rocks, I wish that you would state what that situation is there. Take it up and show it to the court?

A. Just what do you want me to explain, judge?

Q. The contact conditions as shown on that cross section.

A. On the northern portion of this section, which is a north and south section, we find the West End rhyolite in the foot wall

767 of the north dipping portion of the vein.

Mr. Dickson:

Q. Throughout.

A. No, sir, only for a short distance. I believe, just at this point as it happens, what I have called West End rhyolite is the Monatna breccia, which is the first flow of the West End rhyolite and which is very closely related to it. Throughout the balance of the section the footwall area on the plane of this section is Mizpah trachyte.

768 Q. Is the contact the same on both sides of the anticline in that section?

A. With the exception which I have noted.

Q. Well, in the immediate vicinity of the crest of the anticline, on both sides, on the north dip and south?

A. You mean on the hanging wall side and the foot wall side?

Q. Yes, sir.
A. On the hanging wall side——
Q. Well, can't that question be answered catergorically? No.
A. It can not on this section, Judge.
Q. Well, just explain that. I want to get that point on both sides of the anticline as to whether they are in similar foot wall rocks?
A. They have, with the exception of the north end of the section.
Q. On Plaintiff's section 12. Mark that Siebert 2.
A. Mark this "Siebert 2," you say?

Mr. Colby: Yes. He has already referred to this section here which has not been marked. This ought to be Siebert 1.
Mr. Dickson: Mark that, then, Siebert 1.
(Both sections marked by the witness.)

Mr. Lindley:

(Q.) Now, go back to that section 12. With reference to the vein, as shown in Section 12, is there any difference between the wall rocks of the vein on the north and on the south side of the anticline?
A. None, except as I have noted except at one place here where there has been heavy erosion, the Fraction dacite breccia oc-
769 cupies a position directly on the hanging wall.
Q. How far is that point down from the axis of the anticline?
A. Approximately 310 feet on the dip of the vein.
Q. In which direction?
A. Southerly.
Q. In which direction from the axis?
A. Southerly.
Q. Now, I believe that some specimens have arrived here. Will you look at them and see if those are the ones that you wanted?
A. Yes sir, they are.
Q. Well, will you exhibit them and mark them. Are they marked?
A. No sir, I have not marked them.
Q. Well, exhibit them to the Court and we will mark them now. This will be Siebert 3, the one that you hold in your left hand, you may mark "Siebert 3."
A. I do not believe I can mark them very well without a sticker, they are too much discolored.
Mr. Dickson: There is some mark on this now.
A. Yes, I marked that.

Mr. Dickson: I would like to have them marked in some way, if I wish to refer to them in cross examination.
Mr. Lindley: Of course, we want them marked, Judge; we will have them marked Siebert 3 and Siebert 4.
Mr. Evans: Just put lines down, three lines, and we will put the sticker on later.

Mr. Lindley:

(Q.) Now, calling your attention to the two specimens, Siebert

3 and 4, will you explain what they are, where they came
770 from, and who got them?

A. The specimen marked Siebert 3 I took from the out crop of Burro vein No. 1 on Mizpah hill. The specimen marked 4, Siebert 4, I took from very near the bottom, within 3 or 4 feet of the bottom of winze 664 in the West End mine, which is approximately 40 or 45 feet vertically below the 600 foot level.

Q. How far from the contact of the Fraction dacite breccia?

A. It is at a point where the—or near a point where the Fraction dacite breccia shows in the top of this winze.

Q. Will you explain what difference, if any, there is between the two rocks?

Mr. Dickson: I suppose you mean with reference to oxidation?

Mr. Lindley: Yes.

A. Why, the stage of oxidation, the amount of oxidation appears to be very similar; a little bit more in the specimen from the bottom of the winze, really, than that from off the surface.

Mr. Lindley: Take the witness.

Cross-examination.

Mr. Dickson:

(Q.) Just a few questions, Mr. Siebert, respecting your experience, qualifications. You spoke of having studied geology in what University was that?

A. Ohio State University, and also I had some extra geo-
771 logical study with Professor Orton, who was the Professor at the same University.

Q. Were you taking a general course in the University or a special course?

A. I switched courses several times. I started in electrical engineering, and I do not know what it was toward the finish. I probably would have graduated as a bachelor of science if I had finished.

Q. To what extent did you pursue the study of geology in the University in its cognate branches?

A. Not very far.

Q. Quite limited?

A. Yes, it was somewhat limited. but I think I got most of it from Professor Orton on trips during the summer with him in the field.

Q. How long were you studying with him in the field?

A. I suppose altogether two months.

Q. Where?

A. Southern Ohio and West Virginia, and one trip into Michigan.

Q. Geology with reference to metaliferous veins, or ore deposits?

A. Principally in the coal mining districts and the iron districts.

Q. Now, I take it from your answers, Mr. Siebert, that from the time when you arrived in Nevada in 1898 until you came to Tonopah in November, 1901——

A. Yes, sir.

Q. That your experience in mining was quite limited. I should judge that from what you stated in direct examination so far
772 as giving you any opportunity to study the geology of the country in which you worked, or section; prospecting mostly, was it not?

A. Yes, and I was studying at the same time.

Q. I am speaking of your actual experience in the field. You were prospecting during that period from the time you arrived in Nevada in 1908 until you came to Tonopah late in the year 1901?

A. Well, I was at the Dalton and Lark mine at Bingham.

Q. Your work in the Silver King was in the mill and in construction work?

A. Yes, principally.

Q. And you work- in the Dalton and Lark, how long were you engaged there in the work of mining actually?

A. From February, 1900, until, I think it was December, 1900, or October, 1900.

Q. And when you came to Tonopah in the latter part of 1901, you were employed by the Salt Lake and Tonopah Mining Company, and the property that you had charge of then for some six weeks or two months was practically an undeveloped property?

A. Yes sir.

Q. Practically no work had been done upon it?

A. That is correct.

Q. That is true, is it not?

A. Yes sir.

Q. And you left Tonopah when, 1904, did you say?

A. That was the date of my resignation. I left Tonopah in December, 1903. I had resigned at that time, but my resignation had not been accepted and was not accepted until the follow-
773 ing April or May.

Q. And you left Tonopah in the latter part of the year 1903?

A. Yes sir.

Q. And then after your return from New York, you went to Los Angeles?

A. Well, I was in New York for several months.

Q. What?

A. I was in New York for several months.

Q. I say, after your return from New York you went to Los Angeles, or am I mistaken about that?

A. I was in New York for several months working for Mr. John Hays Hammond, making special trips for him, and I think it was in April or May, of 1904, that I went to Los Angeles.

Q. Now, when in Los Angeles, were you engaged there chiefly with the business of promoting the sale of mines?

A. No sir, I was engaged chiefly in examination of mines for others.

Q. You did not return to Tonopah to engage in any work in connection with mines until April of the present year?

A. No sir, I have been in here on several trips and have been through the mines at various times, but not professionally.

Q. Not professionally. Just as a matter for your own personal observation?

A. Yes sir.

Q. Have you pointed out in your direct examination all of the places where you have seen what you claim to be the Siebert fault? If not, if there are any other places where you have identified it to your satisfaction, I wish you would do so?

774 A. I do not recall any other places just now. I have been through the McQuillan shaft at this point where it should be, and where it undoubtedly is, but——

Q. Where you did not see it on account of its being lagged?

A. It was lagged over. I could see some little evidence, at least, but I was not sure about the identification.

Q. Where in the McQuillan shaft did you see any evidences of it, or what you believed was it?

A. About 15 feet above the 400 foot level.

Q. Where it is colored in blue on this?

A. Where it is colored in blue, yes sir.

Q. In the McQuillan shaft?

A. Yes sir.

Q. Just below the green, and just above the red?

A. Yes sir.

Q. Now, any other place which you have not called attention to in your direct testimony?

A. I believe there is one place that I have not mentioned, although I mentioned raise 36 .

Q. Yes, you mentioned that.

A. Which is very close at hand. I did not mention the top of raise 302 A.

Q. In the immediate vicinity?

A. In the same vicinity. I think I carried it on up there (indicating).

Q. Well, if you think of any other places that you did not point out in direct examination, please do so now.

775 A. That is all that I can think of, Judge, there *us* a point on the 600 level here, which might be,—the 600 level of the Tonopah *Mining*.

Q. The one near its northerly end?

A. Yes,—which might be the Siebert fault.

Q. In your opinion, is it?

A. In my opinion it very likely is althou*hg* I would expect at that point that the Siebert fault would be a little bit higher, than that; it is a fault very similar in appearance.

Q. I understand that you are inclined to the opinion that it is the same Siebert fault?

A. Yes, either the main portion of it or one of its branches.

Q. Have you seen where it runs?

A. It does apparently branch in other places.

Q. Have you seen where it branches?

A. I have not seen the actual branching, no sir.

Q. How large a fault is it in thickness,—any opening, or cracks or seams?

A. It varies as I said before with the rocks through which it passes and it would be hard to give an average thickness for the gouge, but I should say that there is over a foot of gouge in it.

Q. In some places?

A. On the average.

Q. What is the strike?

A. The strike——

Q. And the various places where you have observed to be what you believe to be the Siebert fault, did you observe the strike?

A. I observed the strike of the movement.

Q. Of course I mean of the fault?

A. It is swinging,—it has so many strikes, it is trough shape.

776 Q. What is the general direction of the dip of that fault?

A. Just as I say it is trough shaped; it dips towards the north and then swings around until it is dipping east, and swings on around until in places it is even dipping south, but the movement along the fault seems to have been in a general direction north sixty-five east, about; that is as indicated by the striation.

Q. Is it troughed so far as you have been able to state—so far as you have been able to study the characteristics of the Siebert fault,—is the trough a general feature, or is it only in places that you have been able to observe anything indicating that it had a trough shape?

A. No, it would take a general observation, of course, over the whole fault to arrive at the theory of a trough shape.

Q. I mean so far as you have examined it. Base your opinion on that throughout that territory?

A. Yes.

Q. Is it generally in the shape of a trough dipping both northerly and southerly?

A. No, directly in the distance examined. In order to get the full evidence for that shape you would have to carry it over into the Tonopah Mining Company.

Q. Have you any evidence of that shape in the territory here under examination?

A. Yes, there is some evidence of it.

Q. Where?

A. Take the strike of the fault along in the hanging wall section of the north dipping limb of the anticline, we find it coming down rather steeply towards,——

Q. Towards the crest——

A. Towards the crest and above the crest and then flattening out somewhat in that shape.

777 Q. You judge that it flattens out from the fact that it is not encountered where it would have been encountered had it continued its steep dip?

A. Yes, there is evidence at such points as I have indicated before.

Q. Well, point out some places where you have it changing from the steep dip southerly, at and above the crest of its anticline, to a flat dip, or to a dip southerly, which would be necessary to produce a trough shape?

A. There is a very marked change in the dip in the vicinity coming from 366 and 302-A raises.

Q. Which are noth in the same——

A. Yes; over here, coming down in the lower portion, the eastern portion of stope marked—14, in the MacNamara ground, that is quite a flat dip locally there.

Q. Well, you had a steep dip above?

A. Yes.

Q. Where do you have a flat dip?

A. Then carrying it over the eastern end of the stope just mentioned to the 500 foot level of the Tonopah Mining Company, you will see that you have a very slight dip.

Q. Yes, a very slight. That is not the only fault in the country by any means?

A. No.

Q. And not the only fault in which gouge is found in the walls?

A. No, sir.

Q. What is the dip of the Siebert fault, as shown in raise 488? Give it to me with some precision?

A. It is approximately forty degrees; that is as near as I could,——

Q. In a general northerly direction, or, is it, the direction of the dip of that fault, as disclosed?

Mr. Lindley: What raise are you talking about?

778 Mr. Dickson: 488.

Mr. Lindley: Taking the dip of the raise or the dip of the fault?

Mr. Dickson: The dip of the fault.

Mr. Lindley: Assuming that the raise goes up on the dip?

The Witness: It does not quite follow the dip.

Mr. Dickson: What I am after, not the dip of the raise, but the dip of the fault, and the direction of the dip of the fault, as it shows in that raise.

A. That would be about it, about forty degrees.

Q. And what direction is it?

A. The direction of the dip would be slightly east of north.

Q. What would be the angle of dip necessary to connect that fault at the bottom of raise 488, where you have what you believe to be the same fault here out near the northerly end of the 600 level of the Tonopah Mining Company, where you have a blue streak shown in the green; where you have it in raise 488?

A. Well, that is pretty hard to get at.

Q. You can get at it by taking the horizontal and vertical distance,—can't you do that?

A. Yes.

Q. Just take it that way, if you please.

A. I can give it to you right here, Judge. About twenty three degrees.

Q. You spoke of following that fault from the bottom of 488 raise westerly for what distance—400 feet?

A. 250 feet.

Q. 250 feet. Are you following there along the strike of the fault—I suppose so, for it is all on the same level?

A. Yes, that is approximately along the strike of the fault,
779 at that point.

Q. Then you have it again, as I remember your testimony, as you go westerly, there are some intermediate points here?

A. Up in the stope, that would be up on its dip.

Q. Just about where in the stope, or easterly edge of stope-14 in the MacNamara ground?

A. Just about that point there(indicating).

Q. Can you designate that anywhere—in anyway?

A. It is not marked.

Q. The first upraise in stope 14, as we go westerly from its easterly terminus, at the top of that you find it?

A. Yes, also the fault is observable over this cross cut here.

Q. Out that far where you encounter it in those places, have you been following it on its strike from the MacNamara shaft or the bottom of raise 488?

A. The fault is felt at this point and don't show again until you get here up in this raise.

Q. That is in what raise?

A. That is the one that is not numbered; I gave a station number that was near that,—station 1220-A.

Q. Well, having followed it on its strike for 250 feet westerly, along the 400 West End level——

A. Yes, that is where it is exposed all of the distance.

Q. No,—I have not finished the question. Having followed it westerly from the bottom of raise 488, for a distance of 250 feet along the 400 West End level, and then finding it again in this raise at a point near station——

A. 1220-A.

Q. Wouldn't you believe that it continued on its course or strike to the place where you find it there?

780 A. I would, yes.

Q. That would be a distance of about how far from the bottom of raise 488? A few feet one way or the other does not make any difference,—an approximation.

A. About 620 feet,—Oh, excuse me, I had the wrong side of that scale. About 490 feet.

Q. And then we follow the cross cut, or a cross cut going northerly from the 400 West End level, starting about 60 feet I should judge westerly from the raise in which you found it, near station,——

A. 1220-A.

Q. About forty feet westerly of that station, there is a cross cut winding out northerly from the 400 level of the West End.

A. Yes, sir.

Q. Where in that cross cut do you encounter, if at all, what you regard as the Siebert fault?

A. At a point where the MacNamara workings connect with the workings of the Tonopah Mining Company, near station T-16. There is about fourteen or fifteen feet different- in elevation between the two levels at this point.

Q. And where next in this cross cut, if at all, do you find it? Nowhere do you?

Mr. Lindley: Where next in the cross cut?

Mr. Dickson: Yes. Nowhere I think, it is not indicated.

Mr. Lindley: The Cross cut passes through it. Oh, that is another cross cut.

A. At a point in the Tonopah Mining Company cross cut,——

Mr. Dickson: 500.

A. 500 foot level.

Q. Mark on the Plaintiff's exhibit-2, "500 T. M."

A. Yes. Approximately 155 feet in an easterly direction
781 from station "T-13."

Mr. Lindley: I was simply going to call your attention to the fact, that there ar some discrepancies in his testimony owing to the difference in the scale.

A. I am doing all my measuring judge on the small model, so far.

Mr. Lindley: There would be a wrong direction owing to the difference in the scale.

Mr. Dickson: The scale of the model is forty and that is what you have used?

A. Yes.

At this time an adjournment was taken until two o'clock P. M. December 17th. 1914.

782 Afternoon Session, 2 o'Clock p. m.

The Court: Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

Cross Examination of FRED J. SIEBERT, Resumed.

Mr. Dickson:

(Q.) Mr. Siebert, we have followed what you take to be the Siebert fault on its strike from the bottom of 488 raise, along the 400 level of the West End workings to and beyond where you find it in this raise, near Station 1220 A, is that right?

A. Yes.

Q. Now, another place where you found it in the workings marked

500 T. M. which I understand means the 500 of the Tonopah Mining Company?

A. Yes, sir.

Q. About where—about how far easterly in that level of the figure 5 in 500 is it that you encounter what you believe to be the Siebert fault?

A. I gave you before the distance from Station T 13.

Q. Well, we can get it this way without going to look at some of those exhibits; how far easterly from figure 5 in 500?

A. Approximately 37 feet.

Q. Now, having followed it on its strike on the 300 level from the bottom of 488 westerly to and beyond where we find it in the raise near station 1220 A, what do you say as to whether or no where you get it in the 500 level of the Montana Tonopah——

A. Tonopah Mining Company.

Q. Whether you encounter it there on its strike or on its dip?

783 A. We encounter from its footwall side and encounter it on its dip more than on its strike. Its strike is across the working.

Q. In which direction?

A. Across the workings.

Q. The strike is across the workings.

A. Yes.

Q. Then speaking generally that fault on its strike has run in the direction from the bottom of 488 raise, westerly and northwesterly to and beyond, where it is found raise near 1220-A, and then when we go over to where it is found in the 500 level or cross cut of the Tonopah Mining Company, its course is practically at right angles to its former course, if its course is across that cross cut?

A. The course which I have described illustrates the trough like shape, of which I have spoken before. It swings from a general northwesterly course to a general northeasterly course, and also its northwesterly course has a steeper dip as shown in the 400 level, than it has where it is shown in the MacNamara workings and in the Tonopah Mining Company's works where it flattens out very considerably.

Q. At present I care nothing about that. You stated in the early part of your cross examination that the workings here concerned, in this part that is here in controversy, under discussion or investigation, that your only reason for supposing that it had taken a flatter dip, than where encountered in 488 raise and other raises, and passed from the vein, that if it had not so changed dip that it would have cut the vein in places.

—. ——.

Q. The main vein?

A. Yes, sir.

Q. What is the difference in elevation between where we have the Siebert fault 30 feet east of the figure five in the 500 T. M. and the bottom of the 488 raise, if any?

784 A. I do not think that the elevations are marked on these maps.

Q. Well, you can give it approximately can't you, from looking at the model?

A. I should say that it was not over twenty feet.

Q. We have again, as I understand the Siebert fault not only in the 488 raise, but in the 461. What is that raise?

A. 2-A.

Q. "-A, 4-A, 5-A, 6-A, 7-A in 366 raise?

A. You overlooked 496.

Q. Well, include 496 at the top of those perpendicular raises. You have it again in the raise marked 366?

A. Yes, sir.

Q. Where we find a streak of blue across that raise, above what is colored in green on the raise?

A. Yes, sir. Above what is colored in purple really.

Q. Now in what is colored in purple and above what is colored in green.

A. Yes, sir.

Q. And where you have the blue marked across that raise?

A. Yes, sir.

Q. Then you have it again in this little raise, which I now point to?

A. Yes, sir.

Q. That hasn't any number, can you give us any station number on that?

A. There is a number on top, it is marked 252.

Q. 252 on Plaintiff's model.

A. I think that you have a different number for that. I am not certain. It is marked 252.

Q. It is marked 252 on the Exhibit of the Plaintiff?

A. Yes.

Q. Then you have it again in the A-raise?

A. Yes, and also in what is marked on this model 262 which is the same raise that is marked 152 on your model.

785 Q. Where is that?

A. This one (indicating).

Q. Well, having it on the 488 raise, the 2 A, 4 A, 5 A, 6 A, 7 A raises, and where it is encountered in the 366 raise and in the A raise, would you suppose that you had been following it there on its strike from the 488 raise to the A raise?

A. Why, they are at very different elevations. You could not follow its strike along a line of that kind or character. That would be following partially on its dip.

Q. Well, wouldn't that represent, approximately, taking into account now the difference in elevation, the raise in the ground as you go to the west, that you are following practically on the strike of it?

A. No, sir.

Q. You have it in 2 places in the raise near station 1220. One to which I now point, a short distance above the 400 West End level, and again in a cross cut or piece of work about midway, running

about northwest, I take it, and starting about midway—northeasterly—of that raise. Where you have it there near station 1220 A, you say you have it on its strike. Have you it on its strike or dip at the other place in the cross cut running out from that raise where you have the blue color to indicate or represent the Siebert fault?

A. The blue color in the intermediate, which is run from the raise which you pointed out, indicates its strike to a certain extent on that level.

Q. Yes.

786 A. But that is considerably higher than the 400 foot level, where you asked me to define its strike before.

Q. What is its dip where you first encounter it in the raise near 1220 A, the angle of the dip and direction of the dip?

787 A. Its dip at that point would be approximately thirty degrees.

Q. That is between the two places where you find it in that raise?

A. In the bottom of what we call the sideline raise, and the point where it is cut in the cross cut.

Q. Near station 1220-A approximately?

A. Approximately thirty degrees.

Q. Does it go down on the true dip of the fault fissure?

A. It does at that point, yes sir.

Q. What is the dip of the Sievert fault where you have it represented in blue in the 366 raise?

A. Taking it from that same intermediate cross cut, where it shows in 366 raise, it would be approximately thirty degrees.

Q. In what direction?

A. At that point it would be about north seventy-five east, taking those two points.

Q. What is its dip in the A-raise in what direction?

A. In the A-raise, I remember the direction of the A-raise which is south forty west.

Q. What is the angle of the Siebert fault?

A. It is pretty hard to get at, if an approximation would be correct enough——

Q. Well as close an approximation as you can give?

A. It is in the neighborhood of thirty degrees.

Q. Does that raise follow up on the true dip of the fault, or is it quartering?

A. Quartering.

Q. Can you tell or give me an approximation of about what the angle of dip would be, if you went up on the true dip of the so-called Siebert Fault where it is disclosed in A-raise?

A. It would be flatter I would say.

Q. Flatter?

A. Yes.

788 Q. Flatter on the dip?

A. Yes, because the fault at that point makes a turn. If you went up on the true dip you would go up on a course about north seventy east, at that point.

Mr. Lindley:

Q. North seventy east or north seventy west?
A. North seventy east.

Mr. Dickson:

Q. And the dip would be what?
A. The nearest place that I can get at the dip is not shown here. Taking it from the top of the 200-A raise down to the first place as shown in the MacNamara——
Q. The east edge of stope-7.
A. The east end of the first intermediate of the MacNamara; it shows a dip of approximately eighteen degrees.
Q. Is this the three hundred (indicating)?
A. That is the 500 West End level.
Q. Notwithstanding the A-raise is not put up on the true dip of the Siebert fault fissure, nevertheless, the appearance to anyone who would go there and observe it is that the A-raise goes up as a continuation of the northerly dipping portion of the stope shown in that vicinity,—does it not?
A. No, sir, because——

Mr. Lindley: Let him finish his question.
Mr. Dickson: Well, I just want to add a little more to the question.

Q. In the hanging wall which you follow up in A-raise, would there be an appearance of the hanging wall, of a continuation of the hanging wall, in the stopes dipping northerly below the bottom of it?
A. The hanging wall rolls over the anticline, and the raise continues on up at about the same angle as the hanging wall
789 on this northerly dip but it is not a continuation.
Q. My question is would not it appear to the ordinarily intelligent observer that the hanging wall which is followed up by the A-raise is continued and in conformity to the hanging wall of the stopes dipping northerly from the foot of that raise—isn't that the appearance?
A. I don't know what the ordinary observer would think of it.
Q. Well, you cannot divest yourself—in answering that question you cannot divest yourself of your scientific acquirements, so as to say how it would appear to the ordinarily intelligent miner?
A. I think that I explained that, that the hanging wall continues up at about the same angle,—the raise continues on up at about the same angle as the hanging wall.
Q. So that the appearance is that the hanging wall that you have in the A-raise, would be a *oc*ntinuation in direction and in dip, inclination of the hanging wall of the stopes dipping northerly immediately from the bottom of that raise?
A. In so far as its dip is concerned only.
Q. What?
A. In so far as its dip is concerned only.
Q. Where, as you follow down from the top of the A-raise, fol-

lowing its hanging wall down to the bottom, and then start off on the northerly dipping stopes from that bottom, do you find anything to indicate that you pass from one hanging wall into another hanging wall?

A. Yes.

Q. Where, I say?

A. At the foot of that raise you can very clearly see the Siebert fault going off into the hanging wall of the stope.

790 Q. But the hanging wall itself at the top of this raise, or the top of the stope—just at the bottom of the A-raise and on upward, is there anything to indicate that you pass from the hanging wall of one formation to the hanging wall of anything else?

A. I have just explained that the interruption or difference is at the bottom of that raise where the fault very clearly goes out and over the hanging wall of the stope.

Q. Has the fault dislocated the vein there?

A. It has not.

Q. Has it dislocated anything found in the A-raise?

A. It has dislocated the stringers.

Q. Dislocated the quartz that is in place in the A-raise if there be any?

A. You can very clearly see where the stringers are cut off and abutt against the fault in A-raise.

Q. Near the bottom?

A. Principally near the bottom but all the way up so far as that is concerned.

Q. Now what is the dip of the Siebert fault, the 2-A 4-A 5-A 6-A and 7-A raises? Approximately the same I take it?

A. Approximately about thirty degrees.

Q. Do these raises severally go up on the true dip of that fault?

791 A. At that point they are very near to the true dip of the fault, at that point.

Q. Unless the direction of the dip, the direction, the angle of the dip as followed from the top to the bottom of each of those raises had very materially changed, flattened, that fault should have been cut, should have been disclosed in the 500 level of the West End running out northerly from the McQuillan shaft, shouldn't it?

A. It should have been.

Q. And the mere fact that it has not been so encountered is what you base your judgment upon that it has flattened?

A. Not altogether.

Q. What else?

A. The fact that it has not been encountered in 533 A raise from the level which you have described, the 500 level of the West End.

Q. It should have been cut in that if it had not changed its dip?

A. Yes sir. It also should have been cut in the raise 537 from the 500 foot level of the West End if it had not changed its dip.

Q. I say the fact that it has not been cut, what you call the Siebert fault has not been cut in those workings *in* the basis for your

judgment that that fault has gone down to the north at a flattened dip?

A. Another basis for my judgment——

Q. Is that part of the basis?

A. That is part of it, yes sir.

Q. What else?

792 A. *Is* that as we go westward or north westward along the Siebert fault and into the MacNamara ground, we find it dipping at angles as low as 2 or 3 or 4 degrees, some places almost horizontally.

Q. Where?

A. Right in through here (indicating).

Q. Point to the places.

A. In through this portion here (indicating).

Q. The record will not show where you are pointing.

A. This is the eastern end of the stope in the MacNamara ground marked 14, where it is the most flat.

Q. Where else?

A. In this vicinity, if I may be allowed to glance at my notes, I can give you the exact dip.

Q. Certainly.

A. I haven't got the exact dip, I thought I had. I marked it "nearly flat."

Q. Well, that will do. Has the Siebert, fault, or what you take to be the Siebert fault, where disclosed in 2 A, 4 A, 5 A, 6 A, and 7 A raises faulted the vein?

A. No sir, it has not faulted the vein except in some cases the indications are, as in 496 raise, that it has sliced off a portion of the vein. It has not in any case interrupted the continuity of the vein.

Q. The faulting upon the Siebert fault, as I understand, has been very considerable, a hundred feet at least, or more, in an easterly and westerly direction, and an unknown distance in a drop?

A. We do not know the easterly and westerly displacement.

Q. Well, I understood Mr. Finch to say that it was at least a hundred feet, and how much more he did not know?

793 A. That is northerly and southerly.

Q. What?

A. Northerly and southerly.

Q. Northerly and southerly?

A. Yes sir; in following down on the contacts of the Midway andesite and Mizpah trachyte from the point at the top of this raise to points in here (indicating).

Q. In here you mean——

A. In the McQuillan shaft.

Q. So the faulting has been in a northerly and southerly direction on the plane of the Siebert fault, is that right?

A. No sir. All indications are that the movement along the fault has been about north 60 or 65 east.

Q. Yes.

A. But in moving in that direction, it has made a northerly and

southerly displacement which shows on the plane of a north and south cross section.

Q. So there are two components to that fault, one north 60 east, or thereabouts, and the other——

A. There is only one component that I know of, and that is north 60 or 65 east.

Q. Well, how do you account for your displacement in the other direction?

A. Smply the displacement that would show on the plane of a vertical cross section, and does not represent the whole movement of the fault at all.

Q. At all events, does your observation lead *to* you to the conclusion that there has been quite extensive faulting displacement along the line of the Siebert fault?

A. Yes sir.

794 Q. You find no evidence of it as having interfered with or interrupted the vein as you go down either one of these A raises, this series of raises, displacements to any extent?

Mr. Lindley: Mr. Dickson, as I understand the testimony, is that it has not touched the main vein. How can it displace it?

Mr. Dickson: The witness, Mr. Lindley, can protect himself there.

Mr. Lindley: I do not want any false assumption.

Mr. Dickson:

(Q.) I am just asking, is it not true that as — follow it down the A series of raises, follow this fault down to their bottoms, that you discover no displacement of the vein?

A. Except as I have described, what might be a displacement of a portion or a slice off of the main vein. But it has not destroyed the continuity of the vein in any case, nor has it cut through it.

Q. Does not the north dipping branch or leg of your anticlinal fold lay in and along a fault plane from east to west? What I mean by a fault plane, I do not mean one of any great dimensions, a great amount of displacement, but along a fault plane?

A. No sir, it does not.

Q. Not at all?

A. It does where the Siebert fault is tangent to the anticlinal roll.

Q. How is that?

A. Where the Siebert fault is tangent to the crest of the anticlinal roll.

Q. I am not speaking about the Siebert fault. I am speaking about the north dipping leg or side of the anticlinal fold.

795 Do not these stopes and the vein so far as developed on that northerly dipping leg or branch lie in and along a fault plane from end to end?

A. No sir.

Q. Not at all, nowhere?

A. Except as I have described toward the crest of this anticlinal roll, where the fault is tangent to it.

Q. You are speaking now in that last portion of your answer of the Siebert fault, I take it?

A. Yes sir.

Q. Are we following in the vein from the McQuillan shaft along the 300 or 400 West End level to the raise near station 1220 A; is that in the vein?

A. Yes sir, in the north leg of the anticline.

Q. And that portion of the vein is right along the strike of your Siebert fault, isn't it? Is it in your Siebert fault?

A. No sir. The last we see of the Siebert fault is in a cross cut opposite the bottom of 496 raise, and we do not see it again along that drift which you have just mentioned until we come to the bottom of what we call the side line raise, and up that raise a distance of about 15 feet.

Q. But you answered me this morning, Mr. Siebert, that in your opinion from 488 raise westerly along the 400 west end level to the raise where you can find it near Station 1220 A, throughout that entire distance you had the strike of the Siebert fault?

A. I explained to you that it probably existed out in the hanging wall from this level for this intervening distance.

796 Q. Lying just above it?

A. Yes, lying just above it. But it is not shown there for a stretch of approximately 300 feet, I should say, maybe less. For a distance of 260 feet it does not appear in the drift.

Q. In your opinion, it lies just above it?

A. Yes sir.

Q. Just skirts over the top?

A. Yes.

Q. Just like it skirts over the top of the quartz found in these several raises that we have been talking about. If your Siebert fault, as disclosed in the 488 raise, has not changed its dip as found in that raise, where should it intersect this work to which I am now pointing, running—the 569 raise, so called, connecting the southerly dipping stopes with the 537 raise? About where in the 569 raise would the Siebert fault have cut that line of work had it continued on in the dip which it has in the 488 raise?

A. It would cut through 537 raise at just about the point where 569 raise goes off from it.

Q. That would be southerly of that, would it not, some distance? About where this straight edge cuts it, wouldn't it?

A. Well, it would slice off a portion of the top or 569.

Q. About how far southerly of 537 would it cut that raise, that 569 raise?

A. It would first cut it in the top about 15 feet southerly from the south edge of that raise,—south side of that raise.

Q. In 2 A raise, have you not a body of quartz going up

797 that raise, I do not remember the exact distance, for a goodly number of feet, unbroken, not stringers, but one solid mass of quartz from 2 to 3 feet in width or thickness?

A. There is quite a continuous stringer, yes, in that raise.

Q. Well, would you speak of a body of quartz 2 or 3 feet wide as a stringer?

A. I don't remember that it is that wide.

Q. Are — prepared to say that it is not at least that wide?

A. I am not. I haven't the detail of that raise with me at this time.

Q. Going up 4 A raise, have you not quartz there the thickness of 4 feet, and continuing up not less than 2½ or 3 feet for more than 50 feet above the bottom of the raise?

A. No, sir, it is not continuous. That is 4 A you are asking about?

Q. I say for 40 or 50 feet from its bottom?

A. Starting in at the bottom there is a distance there of about 25 feet where there are just mere stringers, and from that on for a distance of say about 40 feet or maybe a little over, there is quite a continuous quartz stringer.

Q. Haven't you in the bottom of 4 A raise a body of quartz more than 4 feet thick, just up from the bottom?

A. Not up from the bottom. The bottom of it really is right at the top of the anticlinal roll, and there is considerable quartz there.

Q. Well, it starts out at the top of the anticlinal fold, judging from the picture here. Now, the first——

Mr. Lindley: One moment. He has not answered, that,
798 Judge. You made a statement which he has not responded to.

Mr. Dickson: Well, am I correct that it starts at the 4 A raise at its bottom, at the top of what you call the anticlinal fold?

799 A. It does start out from the top.

Q. Now, from that bottom up for a goodly number of feet, say eight or ten feet, haven't you quartz there from four to five feet thick not any stringers, but one mass of quartz of that dimension?

A. I do not recall it, judge. There may be a portion of the top of the anticline in the raise. But between that and the next quartz is a distinct interval.

Q. I did not hear the last of that answer.

A. I say I do not recall it. There may be a portion of the top strand of the main anticlinal vein right in the bottom of that raise, but before we come into the stringer which you mention, there is a distinct interval in which there is no quartz but very small stringers.

Q. Do you find any quartz in 2-A raise, in place, as though it occupied the position now in which it was originally deposited?

A. Yes, sir.

Q. Is that true of 4-A raise?

A. I consider all of the stringers that show in those raises as being in place.

Q. Do you call every exposure of quartz that is found in those raises, a stringer, notwithstanding what its dimensions may be?

A. I regard it a stringer forming a part of the same conditions that exist in other parts of the mine; I consider the condition found in the raises, identical with the condition found in the hanging wall

section of the big vein at other points, except that in those raises they have been cut off by a fault.

Q. If you followed a body of ore in Raise 4-A—I do not want to take each one up—from its bottom to where it encounters cap rock, 4 ft. thick, would you call that a stringer?

800 A. No, sir, not if it was 4 ft. thick.

Q. And carrying in places commercial value, would you call it a stringer?

A. Not, if it were continuous and in line.

Q. Have you noticed——

Mr. Lindley: One moment. Go on Mr. Siebert and complete your answer.

A. If it were continuous and in line, and well defined in every way and having a foot wall and hanging wall, I would not call it a stringer.

Q. Hasn't it a hanging wall where found in those raises?

A. No.

Q. A distinct hanging wall of gouge?

A. No, sir. It has the Siebert fault overlying.

Q. That is gouge isn't it?

A. Yes, it is gouge, but it is distinctly later than the vein if there be a vein.

Q. Have you a note of your observations in 4-A raise, as respecting the dimensions of the quartz found therein, or are you simply now speaking from recollection?

A. From recollection.

Q. How long since you were last in there?

A. It is possibly a month since I was in 4-A raise.

Q. Now how long since you were in 2-A, 5-A and 6-A and 7-A?

A. About the same time.

Q. And you have no notes of what you observed?

A. Not with me, no, sir. In explanation I might say that I helped Mr. Searls in detailing the quartz found in those raises and in making accurate cross sections, and those notes are in Mr. Searls' possession, and I have no doubt he will present them.

Q. But you speak simply from general recollection?

A. Yes.

801 Q. You have not been and never were, were you, in the stopes on the north dipping leg, side of your so-called anticlinal fold while work of stopeing was going on?

A. I never saw any work going on. I was——

Q. Were you in those stopes while the work that had been done was still fresh, very recent?

A. No, sir.

Q. If there were a clay gouge on the hanging wall of the north dipping branch or leg of this north dipping anticlinal fold, and the ore stoped out up to the gouge, and a then very considerable time had elapsed, with the air circulating in the mine, would the gouge not dry and fall away from the over hanging wall?

A. It might and it might not. If it had dried and fallen away it would probably by lying in the floor of the stope, if there had been no work going on.

Q. Did you look in the floor of the stope to see if any of it had fallen off?

A. I don't remember that there was any there.

Q. But did you look for it?

A. I did not look for it particularly, I did not imagine that that would be important.

Q. So that you are unable to say from your observations?

A. Yes.

Q. There may have been a clay gouge overhanging the ore, between that and the solid hard rock through out the stope on the north dipping leg of your anticlinal fold—is that not true?

A. I did not get that, will you please read the question?

Q. I will put the question again. From what you are able to say, from your means of observation, may it not be true, that overlying the ore, between the ore and the overlying hard country rock, there was a clay gouge extending through out the stopes on the northerly leg or side of your anticlinal fold?

802 A. There are some pillars left in the stopes there which do not exhibit gouge of any amount.

Q. Do they exhibit any?

A. Oh, they might exhibit a very small seam of gouge and the north dipping limb exhibits a very thin seam of gouge; I think that it is on the three hundred foot level, but not to compare with the gouge in 200-A, for instance.

Q. Or our Raise-A?

A. Your Raise-A, yes, sir.

Q. Is that the extent of the answer that you desire to make to that last question?

A. I cannot think of anything further to answer that question.

Q. The thickness of the gouge on any fault plane would be governed largely by the character of the rock through which the fault has passed, together with the motion upon the plane of fault?

A. Yes.

Q. The softer the rock the thicker the gouge, which you would expect to find?

A. Yes.

Q. How thick is the gouge in 488-Raise, have you any note of it?

A. Well, I should say that it is over a foot.

Q. Well, you are prepared to say that?

A. That is the best of my recollection.

Q. And is that true of 2-A, 4-A, 5-A, 6-a & 7-A raises, and A Raise?

A. I think that it would average in the neighborhood of a foot.

Q. Varies in thickness in those other raises?

A. I didn't understand.

Q. Does it vary in thickness in each of those comparatively short raises?

A. To some extent, yes.

Q. About these stringers that create Mr. Finch's halo, point out some apart from these raises, of the larger stringer, that form that crown of grace?

803 A. The best exhibition of the same condition that exists at the crest of the anticline, of the big anticline in the West End MacNamara vein, is found in a cross cut known as 712.

Q. Where?

A. 712 in the Jim Butler ground.

Q. Show me that, point that out to me, please.

A. (Indicating.) Along in this section here.

Q. Now, identify that for the record, please?

A. 712 cross cut in the Jim Butler.

Q. Is it marked so on the model?

A. It is not.

Q. Well, mark *is* 712-S, on the model.

A. (Witness indicating on model.)

Q. Now, in that vein which you have just marked in pencil, 712-S, where is it that you find the stringers cutting into the hanging or foot country?

A. For the total length of the cross cut from where it leave the Fraction vein to where it enters the big vein.

Q. Give me where you find those fissures or those seams and the dimensions of each, thickness of each?

A. I could not do that judge, it is just a mass of interlacing stringers with an occasional large one.

Q. Where is the largest one that you find?

A. The largest one is near the top of the main vein, where it makes another anticlinal roll.

Q. Where you are now pointing?

A. Where I am now pointing.

Q. You have an anticlinal fold there?

A. Yes, and just beyond that there is a vein as indicated on the model here, where that short cross cut is, which I should say would represent three or four or five feet of solid quartz.

Q. Have you a note of it—its dimensions?

A. I have indicated it on here.

804 Q. That is free hanf drawing was not drawn to scale I suppose?

A. No, but it is very close to scale. It would show on here about three feet.

Q. It has not been followed up——

A. For a short distance.

Q. Upward?

A. Yes, sir.

Q. Any gouge on the walls there?

A. No, sir.

Q. Apart from this one which you have just last described, what is the size of the other stringers or seams,—knife blade seams or what?

A. All through the mine——

Q. I am speaking of this particular cross cut.

A. Oh, this particular cross cut. Well, I have already said that they extend the whole length of the cross cut.

Q. I know that you have. My question is apart from the one that you have particularly described, the largest one. What are the dimensions of the other little knife blade seams?

A. Well, they run from little knife blade seams up to ten or twelve inches, and where sometimes a lot of them come together they will form quite a body of quartz.

Q. You are quite familiar with the mines of this Tonopah District?

A. Yes.

Q. Don't you think that almost anywhere in the lode trachyte away long distances from any vein, you will find little quartz seams almost anywhere?

A. There are large areas where you can go for a long distance without finding any quartz seams.

Q. Do you not find them very long distances from any known vein, in the lode trachyte throughout the district—little seams of quartz?

A. Little seams of quartz, yes. Most generally they are
805 near the larger veins.

Q. And seams an inch or more in thickness?

A. Yes.

Q. And you think that lying above—or rather do you think that lying above the 488 and the A series of raises in hanging country there were stringers such as you have referred to, that have been cut off by that fault, by the Siebert fault?

A. Yes.

Q. Did you make any effort to determine that—whether that was so or not?

A. Well, I was unable to determine the real throw of the fault and would hardly know where to look for them.

Q. There was nothing to evidence any throw of the fault there was there, where it is disclosed in those raises?

A. Not in those raises, no sir, that is any throw that you could measure.

Q. If you believe that there may have been stringers in the hanging country overlying the roof or clay gouge of this fault, do you also believe that they would be found in the foot country beneath those raises?

A. In the foot country?

Q. Beneath those raises?

A. I think so.

Q. If so they would not have been cut off by the Siebert fault?

A. No, sir,—still in place in the trachyte.

Q. Did you make any effort to find if they were there or not?

A. We did not do any work particularly, there is development which was already done, which proved that there are stringers in there.

Q. Where between raises 2-A and 7-A do you find stringers under the raises?

A. For instance in this raise here.

Mr. Lindley: Name the raise and put it in the record. You cannot tell in the record what it is.

806 A. Numbered as raise 418.

Mr. Dickson:

Q. Now point to it on the model, Mr. Siebert.

A. (Indicating.)

Q. Anywhere else?

A. This connection going up to 5-A which has been used as an ore chute, exhibits the same conditions.

Q. Anywhere else?

A. Raise 429-B.

Q. Well, that is above not below it.

A. I thought you said below.

Q. Yes. What do you have there in that raise?

A. That is a stringer section.

Q. How thick is the stringer section, knife blade?

A. No, sir. I think that the thickest quartz to be found in that raise is about two feet.

Q. There is one stringer?

A. Only one indicated there, but there is another that I do remember there, making a course like that (indicating).

Q. The one that is not indicated here, have you noticed the thickness of that?

A. The one that is not indicated is very clearly defined, and it is probably a foot wide on northern side of the raise and a few inches wide on the southern side of the raise.

807 Q. And what is the distance between the north and south side, a few feet?

A. Probably 6 feet.

Q. You have no note of it, you say?

A. No sir, just the ordinary size of the raise.

Q. Under 488 raise, between that and the south dipping stopes?

A. Yes sir, there is a very well marked stringer section.

Q. Where shown? In what line of work?

A. It is shown in connection from the top of 569 raise up to the 400 foot level directly underneath 488 raise.

Q. That is right at the bottom of the raise, isn't it?

A. I say up to the bottom.

Q. I mean from the bottom of the raise to the top, between that and the southerly dipping stopes. There is no work to show whether you had any stringers or not?

A. Excepting that we can see them going up in the hanging wall of that raise 569.

Q. Suppose you had extended from the easterly end to the westerly end of the crest of this fold, so far as depicted upon the model, raises every few feet, with same disclosures and for the same distances as you find in 4 A, 5 A, 7 A and 488 raises. You would still, I take it, be of the opinion that that upper terminal edge was

not the top of the vein, but those were mere stringers that had gone up into the hanging country?

A. I would.

Q. You would?

A. Yes sir.

Q. Although at the tops of each of them you had quartz in places carrying values for a thickness of at least 2 feet?

808 A. I have not found any continuous body of quartz going up any of those raises.

Q. My question was if you had at intervals of a few feet, from what you call the west or east end of the crest of your anticlinal fold continuously to your westerly end of that fold, raises going up from 20 to 30, 40 or 50 feet above the top of the crest of the roll, and having in the tops of each quartz of 2 feet or more in thickness, carrying values, would it still be your opinion that the tops of those raises, the line along the top of those raises was not the top or terminal edge of any vein, but that was all referable to the stringers that had gone into the hanging wall above the true top which is the crest?

A. Assuming that such raises as you described were put up, and also assuming that lying parellel to the fault and extending along in its same plane was a body of solid quartz, 2 feet thick that carried values,——

Q. I do not mean necessarily commercial values, you understand?

A. I understand. I should say that it was a vein, but I do not find those conditions in the raises as at present developed.

Mr. Lindley: The question was not directed to what was shown in the raises. It is the condition on the crest of the anticline.

Mr. Dickson: Raises over the crest of the anticline.

Mr. Lindley: You said up raises that — put along above the anticline into the hanging country and disclosed these veins, where would the top of that vein be? I did not understand you to say that you were confining your question to the raises.

809 The Witness: He said such raises——

Mr. Lindley: You said vertical raises.

Mr. Dickson: I did not say to the hanging country. I say our contention is these raises do not go up into the hanging country. My question was if at intervals of every few feet, 4 or 5 feet, starting at the easterly end of the crest and continuing to the westerly end of the crest, you had raises going up 20 or 30, 40 or 50 feet and at the top of each of those raises you had quartz 2 feet in thickness, whether he would, in his opinion, say that the line connecting the tops of those raises in this quartz carrying value was not the top of this vein?

Mr. Lindley: Well, I did not misconstrue your question. The points from where these raises were to be run was not specified.

Mr. Dickson: I said at intervals of every few feet.

Mr. Lindley: From where, and running where?

Mr. Dickson: From the east end.

Mr. Lindley: Parelleling A raises?

Mr. Dickson: From the east end to the west end, starting from the crest of the fold.

Mr. Lindley: The witness started to tell you what was in the fault plane. I do not think the witness understood your question because he was taking the conditions in the A raises and a work starting from raises run over the crest of the fold.

Mr. Dickson: Well, I do not think my cross examination is subject to any criticism.

Mr. Lindley: I take it that the answer of the witness was
810 not responsive to the question.

Mr. Dickson: Well, put it this way:

Q. We will suppose that at intervals of 10 feet from the east end to the west end of what you call, and -long what you call the crest of the anticlinal fold we had raises such as 488, and the other raises that have been put up, the A series, and that we had quartz up each of those raises, and say they extended, some of them 20 feet, some 40, some 50 feet and at the top of each you had quartz in place, a foot or 2 feet in thickness, carrying values, would you still be of the opinion, or would you be of the opinion that all of those raises and all of the quartz disclosed in such a series of raises was to be accounted for by stringers that had made up into the hanging country above the true hanging wall of this anticlinal vein?

A. Assuming, as I said before, that the quartz were solid, and assuming that it had a well defined dip and strike and walls, I should assume that it was a vein; I should think it were a vein. But I do not find such conditions in the raise which you have driven.

Q. You are answering upon an assumption that I have not requested you to make. We will suppose that each one of the series of raises that I have referred to you had what you call your Siebert Fault, just lying above the top of them. Would you then be of the opinion that all the ore found in those raises was to be accounted for as stringers in the hanging wall country above the true hanging wall of your vein?

A. Would you read that question, please.

(The reporter read the question.)

811 A. In answering the last question, I assumed for the sake of answering your question that the Siebert fault was a hanging wall.

Q. Is that the only answer that you desire to give to the question?

A. Yes sir.

Q. Are you familiar, or have you ever been familiar with the—I will withdraw that question for the present. Coming to the westerly terminal edge, where you have your Fraction dacite breccia, how do you account for the presence of that breccia, being the flow from some voncanic eruption at some great distance——

Mr. Lindley: Well, I do not object to Counsel asking the question, but I did not go into the dynamics of this case with this witness.

Mr. Dickson: Well, I think you went far enough to entitle me in cross examination to ascertain what knowledge he has.

Mr. Lindley: Very well. I point out to the Court that I did not open this subject of dynamics or the genesis or the origin of these rocks. I did not consider—while I think he is perfectly qualified, and I think probably the gentleman will get some surprises if he continues his question, I want to say that I do not believe that it is proper cross examination.

Mr. Dickson: If it is not proper I do not want to be permitted to ask the question. The witness stated——

Mr. Lindley: With this explanation, I withdraw the suggestion. Go on.

Mr. Dickson: The witness stated that the cut-off there
812 was abrupt, but not so abrupt as it would be if cut off by an eruptive rock.

Mr. Lindley: No, by a fault. I do not object. I withdraw all the discussion, only I want the Court to understand that I did not put this witness on as a geological expert. Now, you can go ahead with your cross examination.

Mr. Dickson: Well, I do not know, if you did not put him on as a geological expert, I can not understand portions of the direct examination.

Mr. Lindley: All right. Go ahead. No quarrel between us.

Mr. Dickson:

(Q.) Have you any opinion as to the source from which what you call Fraction dacite breccia found at the westerly terminus of this vein was? From whence it came, how it found its present position?

A. I think it came from a volcanic neck or crater, the location of which I have no idea.

Q. And it was simply poured over the country?

A. I do not think it was poured over. I think it——

Q. Flowed over?

A. I think it is what is termed an explosive breccia and settled over in the form of ash or fragments.

Q. Therefore, if that were the true explanation, it would not break the vein?

A. No sir.

Q. The present appearance of the terminal edge of this vein, in your judgment, is due to the erosion of an ancient exposed surface before the breccia was deposited there?

A. Yes sir.

Q. Did I understand you to say you found vein quartz
813 imbedded in the breccia?

A. Yes sir.

Q. How far from the terminal edge?

A. I think at one point on the 300 foot level I found quite a good sized piece of quartz, about 30 feet from the termination of the vein. On the west end of the 300 foot level, I found quite a large piece of vein quartz imbedded in the Fraction dacite breccia.

Q. Did it resemble the vein quartz that you have in this vein?

A. It was exactly similar.

Q. And was it imbedded in breccia in this sense, that you had that breccia on top, sides, and bottom of it?

A. Yes sir, all around it.

Q. Did you find places along the westerly terminal edge where you had right at the edge, or within a foot or two of it, unoxidized ore?

A. I do not remember of any point where the ore is not oxidized.

Q. You heard the testimony of Mr. Finch as to where he found oxidation. I suppose you agree with him? I do not want to take time to go over the same thing with you.

A. Yes sir, I agree thoroughly with Mr. Finch in that.

Q. Are you familiar, or have you ever been with the Mizpah vein?

A. Oh, yes.

Q. To what depth are you familiar with it?

A. To as deep as it has ever been found, that is just above the 700 foot level.

Q. Does that vein crop to the surface?

814 A. Yes sir. Not through its whole extent, it doesn't.

Q. No, but any portion of it?

A. Yes, a great portion of it does.

Q. Do you not have in that vein, speaking generally, the ores and ore material, vein material oxidized, speaking generally throughout to a depth of 500 feet?

A. Yes sir, there was oxidation on the 500 foot level.

Q. Are you also acquainted with the Valley View vein?

A. Yes sir.

Q. To what depth?

A. I never mined it myself below about 340 feet, I think it was, although I saw the bottom of the vein where it terminates against the Siebert fault.

Q. That was the deepest working when you last visited it?

A. That was the deepest workings, yes.

Q. Now, are not the ores and vein material of that vein, speaking generally, completely oxidized to the greatest depth that the workings had attained when you were last in it?

A. They are not completely oxidized, no sir. They are oxidized in the seams and crevices, show signs of oxidation.

Q. Extensively oxidized?

A. In places.

Q. Quite as extensively oxidized as Siebert 3 and 4?

A. I think there are points on the 500 foot level of the Mizpah where the oxidation is quite as heavy as either one of them.

Q. Do you know whether the oxide of manganese, chloride of silver, horn silver, silver iodides and bromides are the product

815 or result of oxidation?

A. Generally speaking, they are, yes sir

Q. Do you not find in the Mizpah vein and in the Valley View vein to the greatest depths of the workings of either of those mines had attained when you last examined it, the oxide of manganese, chloride of silver, silver iodides and bromides?

A. Yes sir; I never mined on the Mizpah vein below the 500, e
cept we encountered it in the shaft.
Q. I say down to the depth that you are familiar with it?
A. To the lowest depths at which I ran levels, yes.
Q. You do find those metals?
A. I did.
Q. Those minerals. Do you find anywhere in the vein here i
controversy, and if so, where, similar minerals, that is to say, oxi
of manganese, chloride of silver, silver iodides, or bromides?
A. I have never seen any silver iodides or bromides in the We
End MacNamara vein. I have seen the oxide—manganese oxide
Q. Oxide of what?
A. The manganese oxides.
Q. At great depth, too, have you not?
A. The deepest portion of the mine, yes sir.
Q. What depth?
A. From 664 winze which vertically would be about 650 feet fro
the surface.
Q. Do you not find in the West End vein sulphides and carbo
ates, instead or oxides, chlorides, iodides and bromides?
816 A. The West End vein principally, you might say, wi
the exception of the western terminal edge is practically
sulphide ores.
Q. Have you been up in raises—withdraw that question. Ha
you any opinion, if you have not I do not wish to go into it—as
which was the older, the earliest cap rock of this vein?
A. The first cap rock?
Q. Yes?
A. Yes sir.
Q. What was it?
A. The midway andesite.
Q. The midway andesite?
A. Yes sir.
Q. Have you been up any of the raises from the underlyi
trachyte into the midway andesite?
A. Yes sir.
Q. Did you find in any of those raises at the contact between t
trachyte and the Midway andesite evidences of oxidation?
A. Very little.
Q. In direct examination, I understood you to say that the co
tact fissure vein—I want to know if it is correct—was northeasterl
Am I correct?
A. That the direction of the strike or dip or what?
Q. I understood you to say that the trend of the vein, the tre
of this vein was northeasterly?
A. Well, I said it in that way because the strike of the vein chan
so much, I said it simply had a northeasterly trend in order to g
you a general answer.
Q. Well, did you use the term "trend" in the sense of strike
course?
A. Not altogether, no sir.

817 Q. What did you mean by the trend of the vein was northeasterly?

A. Well, for instance, if you were to take up the general course of a vein on its strike from the southwestern corner looking out in this way, you would say that the trend of the vein was toward the northeast.

Q. Well, how near to a northeasterly course? Do you mean practically northeast?

A. No sir.

Q. What do you mean?

A. That is the trend of its greatest extent, so far as I know.

Q. Well, what do you mean by trend?

A. I do not mean strike altogether.

Q. Well, what do you mean?

A. Now, for instance, if you have a large——

Q. By the trend of a vein, as distinguished from the strike of a vein? I simply want to get at——

A. I am sorry I was not more definite. If you wish to ask me about the strike——

Q. No, I ask you what you mean, what you had in mind when you answered that the trend of this vein was northeasterly?

A. I had in mind principally that its dip was southeasterly, and that its trend, or what you might call its strike was in a general northeasterly direction.

Q. Do you mean by that approximately northeast?

A. I said generally northeast; approximately northeast. I see now that I should have said northerly, but it doesn't make any difference.

818 Q. You should have said north 15 west, or thereabouts, instead of northeasterly?

A. North 15 west?

Q. What?

A. If you want me to give you the strike of the vein as I consider it at any point, I would be glad to figure it out, but I haven't got it in my mind just now.

Q. What is, in your judgment, the trend of this vein? What is the direction of its trend?

A. The strike?

Q. In the same sense that you used the word, its trend was northeasterly? In the same sense that you used the word *Q*trend" there?

A. I would say that its trend from the south side line of the Eureka claim to a point about 300 feet northerly from the north side line of the West End claim, that it is a northerly direction or trend.

Q. How near north and south, and how far from northeasterly?

A. It would be almost due north and south.

Q. Almost due north and south. It would be a little west of north, wouldn't it? About 15 degrees west of north?

A. That is, if you are going to take in a point beyond the one which I have mentioned, it would.

819 Q. Do I understand Mr. Siebert, that your opinion is that

westerly from what is marked Plaintiff's exhibit-2, the Corkhill shaft, and on our model the West End shaft——

A. Yes.

Q. That westerly from that, to the westerly terminal or termination of this vein, that you have on the north dipping leg, a contact between rhyolite and trachyte, and on the south dipping leg you have a fissure vein in the homogeneous trachyte.

A. You are correct as to my understanding *as* regard to the south dipping vein, and on a section that is about on a line with our section 12—which is at this point——

Q. Which point?

A. Along the plane of this section.

Mr. Lindley: Section 12 is up back of the Judge there?

A. Yes. There is some West End rhyolite in the foot wall of the vein at the northern end of that section.

Mr. Dickson: You mean that it is your opinion that this contact on the north dipping branch between the rhyolite and trachyte is local, west of the West End or Corkhill shaft?

A. Yes, at this point which I indicate on section 12. As you go further east in the ground you find that in sections of ours, from say three to eight inclusive, would show a contact of West End Rhyolite with Mizpah Trachyte.

Mr. Lindley: On both sides of the anticline?

A. On both sides of the anticline.

Mr. Dickson: Let me read to you. "Q. Well, now what is this contact; is it the same throughout the entire mine, that is the overlying mineral rock is the same, or is there a change in the contact rock?

A. There are several changes in the contact."

820 A. Yes, sir.

Q. "Just generally describe the different kinds of contact in which the vein lies? A. Toward the eastern portion of the West End mine the contact is between Mizpah trachyte and glassy trachyte, the Mizpah trachyte forming the hanging wall, and the glassy trachyte the foot wall. That condition only exists for about 175 feet westerly from the east end line, and beyond that the contact is formed between Mizpah trachyte and West End rhyolite. Q. This condition exists some little distance west of the Corkhill shaft. A. Well, the vein becomes a fissure in the Mizpah trachyte except on its northern dip, and in the MacNamara ground it continues to be a contact between West End Rhyolite and West End Rhyolite"—I suppose that you meant that to be Mizpah trachyte? "The vein just a little beyond the Corkhill shaft,—the vein becomes a fissure in the Mizpah trachyte except on its northern dip in the MacNamara ground it continues to be contact between the West End Rhyolite and West End Rhyolite." That is not what you mean?

A. I said that it continued to be in the northwestern portion of the MacNamara,——

Q. Now, we will substitute the word- "Mizpah trachyte" for "West End Rhyolite." Now, speaking of just a little distance west of the Corkhill shaft,—the vein becomes a fissure in the Mizpah trachyte except on its northern dip, and in the MacNamara ground it con-

tinues to be contact between West End Rhyolite and the Mizpah trachyte, until a-most its western terminus, as far as developed?

A. They left out two words of my answer judge, I am quite sure.

Q. What words?

A. A few words, the words "northwestern portion of the
821 MacNamara stopes."

Q. I made a note of it and asked to have that portion of the testimony, and my note of it was in accordance with the transcript, except the words "West End rhyolite" was used, at least once, when the words "Mizpah Trachyte" should have been used.

A. That is not what I intended to say.

Mr. Lindley: Well, the witness says that is not what he intended to say.

Mr. Dickson: Well, I will give him a chance to correct it. If you testified as I now read, what correction do you wish to make of it, speaking now of the point a little west of the Corkhill shaft,—the vein becomes a fissure in the Mizpah trachyte.

A. That is correct.

Q. "Except on its northern dip in the MacNamara ground it continues to be contact between West End Rhyolite and West End Rhyolite until almost to its western terminus, as far as developed." "I might add that at other points locally, due to faulting or erosion that at times the Midway andesite or the Fraction dacite breccia may rest directly on the vein."—if you did not mean to so testify what corrections do you desire to make?

A. I desire to make the correction that the contact between the Mizpah trachyte and the West End Rhyolite, exists from the point I indicated, which is 175 feet east of the east end line of the West End claim, to a short distance beyond the Corkhill shaft, where it becomes a fissure in the Mizpah trachyte with the exception of the northwestern portion of the north dipping limb of the anticline, where it is a contact of West End Rhyolite and Mizpah trachyte, almost to its—almost as far as it has been developed,—and
822 again in its most northwestern portion becomes a fissure in the Mizpah trachyte.

At this time a recess was declared until three fifty P. M. December 17th, 1914.

After Recess, Three fifty-five p. m.

The Court: The Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

FRED J. SIEBERT on the stand for further cross-examination.

Mr. Dickson:

Q. Only a few more questions. Do you know Mr. Siebert where section-13, Plaintiff's exhibit-3 was passed, where it was taken? Do you know that section of the country?

A. Yes.
Q. Just stand so that his Honor can see.

Mr. Lindley: The section line is marked on the bottom of the model.
Mr. Dickson: Yes, I know that they are.

A. This section line-13—followed a north and south line.
Q. Where that plane of section is taken, do you know that on the northerly dipping leg of your anticlinal fold, and near where I now point, where the stope is shown turning up towards the surface, whether there was a series of faults there, some of them faul-ing that vein in that locality?
A. Yes.
Q. Some of them reversed and some of them normal faults apparently?
A. Yes.
823 Q. That is true is it?
A. That is true.
Q. And to reconstruct the vein at that place, in that particular vicinity, and so as to have it as it was before the faulting occurred, one would have to know whether any one of the series of faults was a normal or a reverse fault, and would have to know also the extent of displacement of each of them?
A. Yes, sir.
Q. I call your attention to a stope marked 19 on Plaintiff's Exhibit-2?
A. Yes, sir.
Q. Does that in your judgment represent an anticlinal fold, tending to show the anticlinal habit of this vein?
A. It does.
Q. That ore body is not on a contact between different rocks is it?
A. It is wholly within the Mizpah trachyte.
Q. It is in a fissure?
A. In a fissure, yes, sir.
Q. What do you mean by the word "tangent" as you have used it here, that this Siebert fault was tangent to the crest of this roll? What is your understanding of the word "tangent"?
A. We have an anticlinal fold like that for instance, and the Siebert fault being a straight line is tangent to it, about in that position (indicating).
Q. A tangent would be only along a line a mathematical line, would it, just where it would touch the circle?
A. It would be along the plane.

Mr. Lindley: Not a line, a plane.
Mr. Dickson: I do not so understand, a tangent of a circle would be just where it would touch its circumference. I just wanted
824 to get the witnesse's idea about it; in what sense he used it.

Q. When did you first come to the conclusion that the trend of trend of this vein was not northeast but somewhat west of north?

A. Well, I think I might say that that was really a mis-statement on my part this morning.

Q. What was a mis-statement?

A. In saying that the trend was northeast. I was thinking more particularly of its dip being towards the southeast, and thinking of its trend or strike as being at right angles, and for the moment I forgot the Ohio workings.

Q. Have you spoken with anybody since you went off the stand this last recess about that? Or has anybody spoken to you about it?

A. No, sir, I do not think so.

Q. You would surely remember if during the past twenty minutes anybody spoke to you about that, or you had spoken——

A. No, sir.

Q. When, then, did you first come to the conclusion or form the opinion that the strike of this vein was practically due north and south?

A. The portion I have mention- to you as being from the extreme end of the West End of the 600 foot level to the point which I mentioned to you as being about 300 feet in a northerly direction, or more nearly 200 feet in a northerly direction from the north side line of the West End claim, is almost due north of south. And from that point in the MacNamara ground to the extreme western edge of the vein, so far as developed in this territory, which is beyond the edge of this model, I should say that the strike is more nearly
825 northwest.

Q. And you are referring now to that portion of the vein upon which I lay the pointer?

Mr. Lindley: No he is referring to that portion of the vein which is not on the model.

The Witness: Also to this portion of the vein. (Indicating.)

Mr. Dickson: Lay the pointer where you want it.

A. I would say from this point here to a point about in here, just as far as the vein has been developed, it is more nearly northwest. (Indicating.)

Q. Where do you deflect the strike, point out on the model—from a north and south strike to a northwesterly strike? At what point on the model?

A. It would be about the point where I have my pointer. There are no numbers in the immediate vicinity to locate it.

Q. Point to it up here.

A. I did, right here, (indicating).

Q. What point would that be on the model, on Plaintiff's Exhibit-1?

A. You might call that the upper northeast corner of stope 9-A, as marked on Plaintiff's Exhibit-2.

Q. From thence southerly what was the strike of your vein?

A. Almost due north and south.

Q. What deflects the vein in its strike at the place where it evidently has been deflected, according to your opinion?

A. Evidently erosion.

Q. The erosion has changed the strike of the vein?

A. Has changed the shape of the out crop.

826 A. I was speaking about the strike, you make a distinction, do you not Mr. Siebert, between the direction of the outcrop of a vein and its strike?

A. Yes, sir.

Q. Well now what is the strike of the vein as distinguished from the direction of the outcrop?

A. The strike on any one level in the northerly dipping vein——

Q. Is about what?

A. Just below that point (indicating)——

Q. What?

A. Just below the point which I indicated before, would be approximately North sixty west.

Q. Lay two rulers if one is not long enough, two of these pointers, on the north dipping vein from the easterly terminus of stope-12, to the most westerly stopeing shown on the north dipping vein, of the line that in your judgment is the strike of the vein—the north dipping branch of the vein.

Mr. Lindley: The local strike on that level?

Mr. Dickson: The true strike.

A. Well, it represents really a curve,—a curved line. If you want to connect the two ends and take the strike in that way.

Q. Well, I do not want to take it any way. I want you to indicate by the pointers, and then state to the court what you believe the strike of the vein to be throughout that distance? At about where you have it—where you desire it.

A. Yes, sir.

Q. And about what is the course of that line?

A. From the edge of stope-12 to a point in stope 8——

Q. The easterly edge?

A. From the easterly edge of stope-12 to a point in stope-8—about where the figure 8 is upon this model——

827 Q. Figure eight in the stope you mean?

A. Yes, sir. I should say that the strike was about north fifty west, and from the figure eight upon the model to the westerly edge of the model, the strike would be about north sixty-five or seventy west.

Mr. Dickson: That is all.

Redirect examination.

Mr. Lindley:

Q. Mr. Siebert, are there any parts of this mine on the north and south dipping vein, in the same plane and same section, which follows a plane of contact from the south to the north dipping vein?

A. You mean forming a contact all the way over?

Q. Where the vein follows a plane of contact on both sides, which is the same?

A. Yes, sir.

Q. Where is that shown on what section?

A. That would show on sections, 1, 2, 3. 4, 5, 6, 7, 8, and if my memory is right, also 9.

Q. Take a typical cross section and explain that, or sections? Show where the contact on the north dipping side of the crest of the anticline is the same contact over on the other side. I want sections that show that clearly.

A. Most any of them will show it clearly.

Q. Now, put them up there and let us see what it is? What are you referring to now.

A. I am referring to section one.

Q. Marked Finch-what?

A. Marked "Finch-4."

828 Q. I will ask you whether or no the plane of contact on the north side of this fissure, is the same on the south side, and whether that contact continues over what you call the anticlinal-roll?

A. It does.

Q. Proceed with the next section?

A. I might remark in section one that this contact is glassy trachyte in the foot wall and Mizpah trachyte in the hanging wall.

Q. Well, now, go on to the different contacts, just exhibit the sections there, to show the idea that the contact is the same on both sides.

A. This is section-2 marked Finch-3. In this section we find that the foot wall is West End rhyolite, for its entire length and the hanging wall is Mizpah trachyte for its entire length.

Q. Over on each side of the anticlinal fold?

A. Yes, sir. On section three we find the same condition existing as on section two. I think the artist has scattered a little too much pink paint here, but this is all West End rhyolite throughout that section and underlying both limbs of the anticline.

Q. Is the contact the same on both sides of the crest of the anticline?

A. Yes, sir, with one exception.

Q. And that is where?

A. That is where the Siebert Fault—no there is no exception there. I thought there was a small segment where the Mizpah trachyte——

Q. In other words we have the contact on both sides which the vein follows?

A. Yes, sir.

Q. Any other section?

Mr. Dickson: May I ask what is the underlying?

Mr. Lindley: You may, yes sir. You may ask anything you want.

829 A. West End rhyolite. Section-4, which is also marked "Siebert-1" shows the same conditions except for a short distance immediately over the raise 294 where the Midway andesite has been brought directly over the Siebert fault, and directly over the vein.

However, going towards the north we find the Mizpah trachyte is again in place in the hanging wall, where it has not been disturbed. We also find that all of the south dipping portion of the roli is covered over by the Mizpah trachyte, and that all of the foot wall on both slopes, is West End rhyolite.

Mr. Dickson: That is section-4?

A. Section-4.

Mr. Lindley: Go on with your successive sections there.

A. That same condition exists in section five which is also marked Finch-6. There is also a little scoring by the Siebert Fault at that point where the Midway andesite is only separated from the vein by the Siebert fault.

Section seven, represents the same condition. The Mizpah trachyte in the hanging wall of the south dipping limb and the Mizpah trachyte overlying the vein on the north dipping limb with the exception of one point where the fault is again tangent to the vein, with the Midway andesite directly over it.

830 Mr. Lindley:

(Q.) How about the foot wall?

A. The foot wall is west end rhyolite throughout. I missed section 6; I will go back to it now. The same conditions exist on Section 6. We can find at one point the Siebert fault immediately overlying the vein, and the Midway andesite over that. But at all other points on both the north and south dip, the Mizpah trachyte forms the hanging wall, and at all points underneath the west end rhyolite forms the foot wall.

On Section 8, the conditions are again the same, with the Mizpah trachyte forming the hanging wall of both the north and south dipping limbs of the anticline, except at one point again where the scoring of the Siebert fault has brought in the Midway andesite. The West End rhyolite forming the foot wall throughout the whole length of the section.

Q. Now, Mr. Siebert, with reference to faults, you have described this Siebert fault, and you have also stated in response to a suggestion from Counsel, or a question from Counsel for the Defendant, that there are numerous faults in the mine. Is there any other fault in the mine shown in any of these workings that is of the same dignity as to size as the Siebert fault?

A. Not that I know of.

Q. Compared to the Siebert fault, how do you classify these other faults that you have mentioned in response to the questions of Counsel?

A. I regard the Siebert fault as younger than any other fault in the mine.

Q. How as to its proportions, as to its major or minor

831 quality?

A. It is essentially a major fault.

Q. These other faults that you spoke of that have faulted the vein in different parts of the mine, are they major or minor faults, taking the Siebert fault as a standard?

A. They are minor faults.

Q. You spoke of the—I understood you to testify in reference to this oxidation that shows on the vein in contact with the Fraction dacite breccia at *h*the west end, and if I remember your testimony correctly, that that oxidation extended or was shown in the drift some distance beyond the point of contact of the vein with the Fraction dacite breccia?

A. Yes, sir.

Q. What determines the distance to which a vein may be—which is exposed at the surface—may be oxidized below the surface?

A. Depends primarily on how much fracturing has taken place in the vein, in connection with the length of its exposure to the surface.

832 Q. In other words, a vein that has been exposed for a very very long time may be oxidized to some considerable extent below the surface, or beyond the surface, whereas, a vein that has not been exposed for a great period of time would have a lesser oxidation in the vein from the surface down?

A. Yes. I forgot to mention in that regard that there is a third element also, and that is the rapidity with which erosion might have taken place, whether it kept in step with the oxidation of the vein or whether the erosion was very light.

Q. Well, with reference to the Mizpah and Valley View veins, are those veins of the same period as this vein?

A. No, sir.

Q. To what period do they belong with reference to this vein?

A. They are very much older.

Q. They are of a very much older period?

A. Yes.

Q. How do you account, if you can account very rationally, for the extent of oxidation shown in the Mizpah and Valley View veins and the much lesser extent shown in the vein in question?

A. I presume that it has been exposed for much longer, being a much older vein, and possibly the shattering on Mizpah Hill has been greater along the plane of the vein, allowing the circulation of surface water to great depth. Then, on the other hand, the West End-MacNamara vein is not only younger, but has been covered.

Q. Covered with what?

A. Mizpah trachyte.

Q. Does that, in your judgment, account for the difference in depth of oxidation shown in one series of veins that is not shown in the other?

A. Yes.

833 Q. In other words, as soon as the Fraction dacite breccia covered up the apex, oxidation ceased?

A. I think it did. It might have gone on to a minor extent.

Mr. Lindley: That is all.

Recross-examination by Mr. Dickson:

Q. From what data do you conclude that the Mizpah and Valley View veins are much older than this vein under discussion?

A. I have drawn that conclusion principally through reading the works of Mr. Spurr.

Q. That is what I supposed. Not from your own observation?

A. No sir. I have always believed that that was the case and I have deduced it for myself.

Q. If it had not been for what you had read in these reports and monographs of Mr. Spurr would you have been prepared to say that the Mizpah and Valley View veins were very much older than the vein here under investigation?

A. They seem to be of very different character and different age.

Q. How is that?

A. They seem to be of very different character and different age, and I could form my own opinion as to the fact that they were of different age on account of their different character.

Q. Independently of,——

A. Independently, but to place the relative age, I don't believe I could do it myself.

Q. And independently, however, of what Mr. Spurr has said and you have read, you would not be of the opinion that the
834 Valley View and Mizpah veins were of a different age than the one here under investigation?

A. That is my belief.

Q. And in your opinion, to the best of your mind, and from what you have read of the writings of Mr. Spurr, in your opinion which would be the oldest of the three, and upon what would you base that opinion?

A. I have never thought enough about it to base an opinion of that sort.

Q. You would not have an opinion as to which was the oldest?

A. I think I would.

Q. Upon what would you base it,—the extent of the oxidation?

A. That would be one way, yes.

Q. What else?

A. The relative positions of the rocks in which they are contained.

Q. And the Mizpah vein is found in this same trachyte?

A. The Mizpah vein is a fissure in the trachyte wholly.

Q. In the same trachyte?

A. In the same trachyte, yes.

Q. And the Valley View, also?

A. The Valley View also.

Q. The depth to which oxidation may be extended will depend upon not only the fractured, broken condition of the rocks enclosing the vein, especially the hanging-wall or upper side of the vein, but its porosity as well as fracturing; porosity that would permit surface waters to percolate down through it, and that the underlying ores would set up a process of oxidation?

A. Yes, it might be.

835 Q. This vein under investigation,—the enclosing wall rocks are very much faulted and broken, aren't they?

A. There are numerous faults, but not so many as on Mizpah Hill.

Q. Here we have many other faults,—the famous Siebert fault,

which is exposed clear through to the surface, cutting all of the cap-rocks?

A. Yes.

Q. And I suppose there are sympathetic fractures from place to place, sympathetic with the Siebert fault, from its top to bottom?

A. Yes sir.

Q. Do you know a fault called the Edwards fault?

A. I know the fault and I first heard it mentioned by that name since the trial began.

Q. Well, apart from the name, you know the fault that has been referred to as the Edwards fault?

A. I do.

Q. Has there not been great displacement on the plane of that fault?

A. Apparently very little displacement.

Q. Very little?

A. Yes.

Q. Hasn't it thrown the vein,—deflected it from its course?

A. Yes, a little bit.

Q. About where is the Edwards fault disclosed on the 500-level of the West End, and give its direction, if you can. Point to the place now,—you are referring now to Defendant's Exhibit "E"; Give us the station.

A. As the fault is disclosed on Defendant's Exhibit "E,"
836 passes across the south side-line of the West End claim at a point near station 1062, and continues in a northeasterly direction, dipping toward the southeast at varying angles, through station D. 1154 in drift 501, follows this drift in the same direction and passes about through station 1157.

Q. Well, I think that will be sufficient. Now do you think that the Edwards fault has played no part in the apparent deflection of the course of the vein in that level?

A. I think it has.

Q. Put up Section 4 for a moment.

A. Our Section 4?

Q. Yes, your Section 4. I don't know whether I have anything to ask on it or not; I couldn't see the colors very well. (Witness produces Section 4.) Will you put up Section 13.

A. Section 13?

Q. Yes, and get 12 and 11 while you are about it. (Witness producing sections.) You have Section 11 now on the easel, or table?

A. Yes sir.

Q. And the foot-wall and hanging-wall country of the north dipping and south dipping veins there, is what?

A. Mizpah trachyte, with the exception of slight scoring here by the Siebert fault, where the Midway andesite comes in and erosion here that brings the Fraction dacite breccia down to the hanging wall.

Q. The same rock underlying and overhanging the veins throughout?

A. Yes sir.

Q. And that is true also with Sections 12 and 13, is it not?
A. Yes, I think it is, with the exception that I pointed out to you this morning on 12.
Q. That little local,——
A. Yes, with the exception of this.

Mr. Dickson: That is all.
Mr. Lindley: That is all.

The Court: This case is continued until tomorrow at 10 A. M.

837 18.

December 18, 1914—ten o'clock a. m.

The Court: The Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Cmpany.
Mr. Lindley: Mr. Bradshaw, take the stand.

Testimony of FREDERICK BRADSHAW, who being called and sworn as a witness on behalf of the Plaintiff, testified as follows, to wit.

Direct examination.

Mr. Lindley:

Q. Mr. Bradshaw, what is your full name?
A. Frederick Bradshaw.
Q. Where do you reside?
A. Tonopah.
Q. What is your occupation?
A. Mine Manager.
Q. How long have you been engaged in the mining business?
A. Eighteen years.
Q. In what capacities and where?
A. The first four years of my mining experience I was an assayer and mine surveyor and engineer of construction of various mines in Arizona and South Dakota. In 1909, I first took charge of a property as superintendent, that being the Sunset Mining Company near Terry, South Dakota. I stayed in that position until
838 January 1900 when I took charge of the Gordon Tiger Mines in Lake County Colorado, I lived there until the latter part of 1901, and then went to Mexico as manager of the Santo Domingo Mines, at Batopolias, Chihuahua. I stayed in this position until May 1909, when I returned to the States.

I took a position as General Superintendent of the Tonopah Belmont in Tonopah on January 1st, 1910. Shortly after this I was made general Superintendent of the Jim Butler Tonopah Mining Company, and have since held that position.

Q. Mr. Bradshaw, when did you first acquire information as to the workings of the West End,—extension of the West End workings underneath the surface of the Jim Butler property?
A. I first acquired positive information early in January, 1914. I had previously tried to get information as to the workings——

Mr. Dickson: How is this material?

Mr. Lindley: I simply want to show that the works of the Jim Butler were not connected with the West End Company.

Mr. Dickson: That will be admitted.

Mr. Lindley: Well, that may be admitted then that these works were not connected, until after the suit——

The Witness: Until January 27th, 1914.

Q. January 27th, 1914?

A. Yes, sir.

Q. And at that time the works of the West End company had been extended underneath the surface of the——

A. Yes, sir, at that time workings of the Jim Butler company broke into the workngs of the West End company.

Q. Now, Mr. Bradshaw you are familiar with the controversy in this case, over the section of the mines, the MacNamara and the West End, where the vein changes its dip from a south to a north direction?

A. I am.

839 Q. And that the controversy in this case, at least one controversy in this case, is the question as to whether the north dipping ledge and the south dipping ledge, constitute one or two veins? You understand that situation?

A. Yes, sir.

Q. Are you familiar with the vein exposures shown in the underground works of the companies, along what we call the top or crest of the anticline?

A. Yes, sir.

Q. I wish you would explain to the court what that condition is and what it discloses as to whether there is one vein or not? Proceed in your own way and state what the conditions are and the reasons for your deductions?

A. I believe the vein in question to be but one vein, this vein is throughout the very much larger proportion of its area a contact vein. In the western portion of the workings it locally is not a contact vein, but has both walls in the Mizpah trachyte. I believe however, that the roll of the vein is simply a dome-shaped anticline, and that there are not two veins in this section or in any section.

Mr. Lindley: Take the witness.

Mr. Dickson: No questions.

Mr. Lindley: One moment. That is all Mr. Bradshaw. Oh, those photographs, identify those photographs that were introduced in connection with Mr. Wiley's testimony.

Mr. Colby: Wiley X, 1 & 2.

Mr. Lindley: Two photographs taken by Mr. Bradshaw.

Q. Your attention is now called to two photographs marked respectively "Wiley X-1" and "Wiley X-2" do you identify those photographs?

A. I do.

Q. Who took them?

A. I took them, with the assistance of Mr. Searls.

840 Q. Are you accustomed to the use of a camera?
A. Somewhat, yes sir.
Q. And will you state the different points at which those photographs were taken, referring to them by the exhibits?
A. Yes, sir. The Wiley X-1,—the photograph marked "Wiley X-1" was taken at the bottom of the 200-A raise, the raise which has been called by the name "A" by the West End Company, and the camera was pointed north forty five east.
This was—the camera was in the MacNamara stope, and the view embraced the south dipping and north dipping portions of the stope.
The photograph marked "Wiley X-2" was taken in the Jim Butler property at a point in the 721 drift. The camera was pointed just about west and shows a small anticline in the Jim Butler workings.

Mr. Lindley: That is all.

Cross-examination.

Mr. Dickson:

Q. I did not hear just where Wiley X-2 was taken?
A. It was taken in the Jim Butler workings from a point in the drift 721. The camera was pointed just about due west.

Mr. Dickson:

Q. His Honor visited those places?

Mr. Lindley: Yes.
Mr. Dickson: No cross.

841 Testimony of CLYDE JACKSON, being called and sworn as a witness on behalf of the plaintiff, testified as follows, to wit:

Direct examination.

Mr. Lindley:

Q. Mr. Jackson, what is your occupation?
A. Miner.
Q. How long have you been engaged as a miner?
A. Well, I started as a miner in 1890, for myself, but there has been four or five years during that time that I have not been actively engaged in mining. I was actively engaged in mining all of the time until after I came to Tonopah in 1901, but since that time I was in the promotion business for a while, that is connected with mining, but not actively engaged as a miner.

The Court:

Q. How do you want your name to appear in the record?
A. Clyde Jackson.

Mr. Lindley:

Q. To what extent have you actively worked in mines?
A. Well, up to the time——

Q. Give us the number of years?
A. Well, it has been very much broken, Judge. I have been as-ayer and sometimes working in the mill, but most of the time I ave been working underground. My mining experience has been ostly underground.
Q. Well, how many years have you spent working in mines underground?
42 A. Well, I would say without haveing figured it out exactly I would say perhaps twelve years, judge.
Q. Where have you worked?
A. I have worked in Candelaria, Nevada, and in Sonora, Mexico, nd Ely, Nevada, and Parks City, Utah, and various places in Cali-ornia, mostly on the mother lode nearly six years along the mother ode in California, and I was in Alaska for a while, but I was in lacer mining there.
Q. How long have you been working in the mines in Tonopah?
A. As an underground miner less than two years. Since Febru-ry of 1913.
Q. What mines have you worked in here?
A. The North Star, West End and the Golden Crown, and the Jim Butler, and before that I was working as Superintendant of pros-ects here in town, the California shaft. I was at the California haft for a while but that was several years ago.
Q. Are you familiar with the vein that is shown in the workings f the West End—MacNamara, that has been worked upon in the tope?
A. Why, a portion of it, judge.
Q. Are you familiar with what we call the top of the anticline?
A. Yes.
Q. Where the vein changes its dip from the south?
A. Yes.
Q. Have you made a close inspection of that section of the mine?
A. Fairly so, yes.
Q. Well, now, I want you to describe what that situation is there, long the crest of that anticline, testify as to what you see, and what our deductions from what you see at that raise and the stopes—such topes and raises, as you may select for that purpose. Are you fa-miliar with this model?
43 A. Why, no. I have seen the model before it came into the Court room but it was not complete. I have looked at it several times here.
Q. Are you familiar with the names of the raises?
A. I know the names of the raises and the top of the anticline.
Q. You may start in, if you please, describing the condition from he cres- of this roll, commencing either at the east or west end which-ver you see fit, and follow it through and explain what the appear-ances are, and what you find there?
A. Starting at the east end of the West End claim you follow up he stope in several raises there, the most easterly one is the 569 I believe, and you can follow the quartz the same as it is in the stopes, where it has not been stoped there, up to a point which is the top of

the anticline, and there a turning over, taking a northerly slope or dip for some distance, this quartz is all solid, continuous quartz.

Q. Is there one or more veins at that point?

A. There is but one vein. There is a little branching out of the hanging wall; the main body of the ore though, the main vein continues right over, and in fact where the branches above—the upper branch leaves, and then it practically comes together again on the northerly dip.

Q. Well, now, where next do you find this exposure?

A. The next raise west of that is practically the same thing, the vein—you can go up out of the stope through that raise 571, and continue over the top of the anticline, following the quartz in the vein continuously, over and on the northerly slope.

Q. And the next exposure?

A. The next the 573 Raise, the same thing can be said practically of that as of the others, and the glancing of the vein,—small
844 branch going up above the lower branch, but it has a top or apex at about the same point where the lower one does, and also slopes northerly.

Q. You say the top or apex——

A. Not the apex—the top of the anticline or roll where it starts from the southerly slope to a northerly slope.

Q. And do I understand you to say that that was so strand also?

A. Yes, sir.

Q. They both pursue the same course?

A. Yes, sir.

Q. Have you any notes upon that subject?

A. No, sir. I made a little sketch—I have no notes.

Q. Made sketches when underground?

A. Underground without measurement at all, just from my eye and alone.

Q. There will be no objection I presume to you referring to these at point you wish to?

A. I would like to refresh my memory on them if I cannot remember exactly.

Q. You may do so. Whenever it is necessary for you to refresh your memory you may be permitted to do so.

A. Yes. The upper branch where it separates here, does come over and join the lower branch on its northerly dip, in about the same way.

Mr. Dickson: What raise is that?

A. Raise 573. Passing from there going still further west you can go along in some stopes there or go ahead and take the 400 level, which lays above the raise and the stopes underneath are not so extensive, and I think that they are stoped up to the top or crest of the anticline, and perhaps slightly over a little bit; that is on the under stratum or lower branch of the vein.

845 Mr. Lindley:

(Q.) Now, you may proceed, Mr. Jackson, with the next indication.

A. In going from the 573 raise further west, you can go either on the 400 level there, or there is a raise out of the end of this stope which takes you up to the 400 level at a point close to 485 raise, I think it is. I think that is it. It is not numbered there. It is the nose or where the vein is cut by the 400 level at a point in the top of the anticline. It would be right here (indicating). It is a little short raise, anyway.

From that point going west, the vein has been stoped for a considerable distance easterly and westerly along the course of the vein, and wherever it is—I should say there is two branches of the vein here, an upper and lower branch; I think they are marked "B" and "A" stope on the model, but going along on the B stope, there is a good many places where it is filled a good deal.

Mr. Dickson:

(Q.) Where? What?

A. Where it is filled, there is a good deal of filling, and in some places it is not so extensively stoped over on the northerly stope as it is on the southern—south slope. But wherever it is, where you have an opportunity to examine it, you find the same continuous quartz going up the southern slope and continuing on up a northern dip.

Mr. Lindley:

(Q.) Have you seen the works of the mine since A and B stopes have been connected?

A. Oh, through the 494 raise?

Q. I mean by raises, yes.

A. Yes.

846 Q. Well, then, what do you say with reference to conditions shown there?

A. That the quartz is continuous over the top of the anticline, from the south slope over and going down on the north slope.

Q. Well, is that the vein that continues from the south to the north?

A. Yes, sir.

Q. The same vein?

A. Yes sir.

Q. Now, you may proceed westerly with your explanation and go along in the route?

A. Well, I think that—as far as that portion there is concerned, it takes me on that lower main branch of the vein as far west as I can go there.

Q. Well, where do you next see the roll?

A. Going west, or I can go into the A stope, if you——

Q. Well, go on, take your own route; you are familiar with the underground workings in this section?

A. Well, the A stope is practically the same as the lower one, excepting the quartz is not so thick, it is smaller, and I find in placed where it can be seen that it joins the lower branch, especi-

ally on the south slope, and there is hardly work enough done, it is not stoped over far enough on the north slope.

Mr. Dickson:

(Q.) Where is that?
A. That is the A raise, or the A stope, rather.

The Court:

(Q.) That is back here (indicating)?
A. Yes, that is referring to all of that A stope.

Mr. Lindley:

(Q.) Would you call those branches or streaks of the same vein?
A. I would call them branches.

847 Q. But with reference to their southerly and northerly trend, and passing over the anticline, are they both alike in that regard?

A. Yes sir. The upper one is not stoped over quite as much as the lower one, but it is stoped over the top of the anticline so that it has a northerly dip there.

Q. Well now, where next do you see the vein where that same or a similar condition is exposed, if any?

A. Between there and the extreme western workings on the top of the anticline, I am not familiar with, but I have been up in the stope which is the stope where the 200 A raise is put up from.

Q. That is up at the West end of the MacNamara west end workings?

A. Yes, that is in the MacNamara ground.

Q. Yes sir.

A. And that stope can be followed up and continues over the top of the anticline on the northerly dip of the vein there.

The Court:

(Q.) May I interrupt for a moment? What did you say about 494 raise?

A. That raise has been put through, been connected through here. There is a connection made there, and there is ore continuous. It is continuous now.

Mr. Lindley:

(Q.) I would like to have the privilege of having our engineer put that connection on the model.

The Court:

(Q.) The number, though, instead of bein- 494, Mr. Jackson, is 481, isn't it?

A. Well, it may be, the lower branch. This upper one, I believe, is 494. I have't the number of the lower one

848 there.

Mr. Lindley: That has been connected later, and we will have that put on the model.

Q. Now, Mr. Jackson, you may proceed; your next place?
A. Well, there is as far westerly as I have been, in the neighborhood of the 200 A raise.
Q. That is as far westerly as you have been. I believe you testified that so far as this most western exposure is concerned, that you have seen, then, that the stope went over the anticline? What about the vein?
A. There is one large pillar right left in the vein shortly east of the A raise, which is still in place there and shows the quartz or vein going over there and in contact with——

Mr. Dickson:

(Q.) Going over where, Mr. Jackson?
A. Over the crest of the anticline. The quartz is in place and against the hanging wall there are several smaller pillars there on the north slope; the hanging wall is a smooth, unbroken wall in that neighborhood and has a gradual curve.
Q. A what?
A. A gradual curve up from the south and over on the northerly dip of the vein.

Mr. Lindley:

(Q.) Now, have you been in the raises that have been identified in the case; we call them the A raises?
A. Yes sir.
Q. The 2 A, 4 A, 5 A, 6 A, 7 A; you recollect those raises?
A. Yes sir.
Q. Have you been on those raises?
A. Yes sir.
849 Q. What do you find in those raises?
A. I find that in those raises mentioned, there is a heavy gouge hanging wall or fault going up, which has been followed up in those raises and along the gouge or hanging wall almost continuously there is ground quartz, crushed, quartz, or drag quartz, and in some places there are large pieces of square quartz or quartz that is not ground. It is in larger bodies. I do not know how it came there, but it is different from the ground pebbles that I speak of.

Mr. Dickson:

(Q.) It is what?
A. It is different from—there is two classes or kinds of quartz there, Judge.

Mr. Lindley:

(Q.) You are speaking of going up those raises and referring to the hanging wall; what do you mean, the hanging wall of the raise?
A. The hanging wall of the raise is gouge or fault.
Q. Well, what are those raises run up on?
A. Let me see now if I get just what you mean?

Q. I mean are those raises run up on a vein, or are they up on a fault?

A. I think they are run up on a fault.

Q. Where does that fault lie with reference to the vein?

A. It leaves the main vein at an angle at the crest of the cline in that section, and is out of the top of the A stope.

Q. Do you know whether those raises are run up on the of the fault or diagonally?

A. I do not know.

Q. You do not know?

850 A. No.

Q. How about the raise called A raise, or you call it 200 A raise? It is called the A raise by the Defendant in case, running out of the MacNamara stope?

A. That was also put up on a fault gouge in the hanging and has some drag quartz in it, and some quartz stringers in raise. Not lying with or conforming to the hanging wall.

Q. The hanging wall of what?

A. Of the raise.

Mr. Lindley: Take the witness.

Cross-examination.

Mr. Dickson:

(Q.) What is your present business, Mr. Jackson?

A. I am shift boss for the Jim Butler Mining Company.

Q. Well, are you in the mercantile business, or did I misun stand you?

A. No sir, I am shift boss underground for the Jim Butler ing Company.

Q. How long have you been such?

A. Since the 5th of last April.

Q. When did you work in the west end claim?

A. I did not work directly in the west end claim. It over in the Ohio, but for the West End Company.

Q. You did not work in any of the West End workings are shown upon this model?

A. No sir.

Q. And when did you work over in the Ohio for the West Company?

A. It would be, I think, a part of May and June of 1

851 Q. When did you make the examination to which have testified?

A. This month.

Q. When, how long were you engaged in it?

A. I went down I think seven trips.

Q. When first.

A. On the third of this month.

Mr. Dickson: As I understand, no doubt his Honor will at those raises, and I won't spend the time in cross examina He can see it better than any witness can describe it.

Mr. Lindley: Certainly.
Mr. Dickson: That is all.
Mr. Lindley: That is all.

Testimony of JAMES W. CUSICK, being called and sworn as a witness on behalf of the Plaintiff, testified as follows, to wit:

Direct examination.

Mr. Lindley:

Q. Mr. Cusick what is your occupation?
A. Mining.
Q. How long have you been engaged in mining?
A. For about twenty six years.
Q. In what capacity?
A. Why, in all capacities.
Q. Working underground?
A. Yes.
Q. In what sections of the world?
A. I have worked in Michigan, Wisconsin, Idaho, British Columbia, Washington, Oregon, Nevada, and Arizona.
852 Q. How long have you been engaged in working in the mines of the Tonopah District?
A. About ten years.
Q. What mines have you worked in?
A. I have worked in the Montana, the Tonopah Mining Company and the Belmont.
Q. For whom are you now working?
A. Tonopah Mining Company.
Q. As a miner?
A. No, sir.
Q. In what capacity?
A. Shift Boss.
Q. Then you are present Shift Boss of the Tonopah Mining Company?
A. For one of the shafts—for the Mizpah shaft.
Q. To what extent are you familiar with the under workings of the West End and MacNamara mines, along what is claimed by the Plaintiffs in this case to be the top of the anticline or fold of the West End-MacNamara vein?
A. I am acquainted in the workings where the series of A-Raises are put up, and also three raises on the eastern end of the West End claim.
Q. Have you examined the vein as it is exposed in those raises?
A. Yes, sir.
Q. Having reference to the latter raises, what raises did you say they were?
A. 569, 571 and 573.
Q. What conditions do you find there with reference to this so-called rolling vein?
A. Well, you can follow the same plane of quartz up through the

stopes, quartz that they have stoped; the streak they used as their hanging wall, or part of their hanging wall, you can follow it up and over the anticline into the three raises.

853 Q. Any break?

A. Yes, there is a break.

Q. What kind of a break?

A. It is similar quartz about the *the* same, breaks and goes up and turns back again.

Q. You mean breaks in direction—changes its direction?

A. No; it changes its direction—here is the lower one, and the upper one breaks away and goes up and turns back down again.

Q. You mean that overlying seam?

A. Yes.

Q. And the underlying seam?

A. Yes.

Q. The slope of them is about the same?

A. Practically.

Q. And do they connect with each other?

A. Yes, sir.

Q. On the north and south ledge.

A. Yes.

Q. Do you know by whom those stopes were made?

A. Do you mean the raises?

Q. Yes, the raises, rather.

A. I believe I understand that part of them was drove by the West End Company and part of them by the Butler company.

Q. Part of them by the Butler company. Now, have you examined the condition of what we call the 200-A raise?

A. Yes.

Q. What did you find there?

A. Why I found little places that they had stoped over the anticline, taking all the ore out. There is a few little pillars left, some of them—some large ones.

Q. Well, they show a vein there in these pillars?

A. Yes.

Q. Well, what happened—what is the condition there with reference to a roll over, if there is one?

A. There is a roll over there—that is they have stoped out on the roll over; the hanging wall there is as perfect a hanging wall as there is in the camp.

854 Q. But with reference to the pillars remaining there they indicate what?

A. They are quartz—quartz there in place.

Q. Do they indicate the vein?

A. Yes.

Q. In position?

A. Yes.

Q. Now, with reference to these raises referred to, the A-Raises, 5-A, 6-A and 7-A and 2-*a*, you recall those raises?

A. Yes.

Q. Did you go up those raises?

A. Yes.
Q. What are those raises on?
A. I should say that they are following a fault of fine drag quartz, and what we term hanging wall quartz.
Q. Where do those raises lie, or where does that fault lie with reference to the position of this vein, which you have been describing?
A. Why, I believe outside of a little gouge underneath it, it forms a hanging wall for the north slope of the vein.
Q. To what extent?
A. I could not exactly say. I don't know exactly what you mean.
Q. Well, you have described an anticlinal vein?
A. Yes.
Q. And a raise going up into a fault?
A. Yes, sir.
Q. Does that fault lie over the vein or does it cut the vein?
A. Why, it lies over the vein.
Q. It lies over the vein. You used the term "break"; I understood you to say that there was a break in the vein forming the upper and lower streak, and that the upper streak went over the anticline and joined on the opposite ledge?
A. Why, it does not exactly break, it is separated.
Q. Separated?
A. Yes.
Q. And goes in which direction—north and south, tur-ing over like the lower seam?
A. Yes.

855 Mr. Lindley: Take the witness.
Mr. Dickson: Those are pretty leading questions.
Mr. Lindley: Well, my understanding was that that was what he did say.

Cross-examination.

Mr. Dickson:

Q. When did you make the examination in these raises, and what you call the top or crust of the anticlinal fold?
A. I believe that the first time I went through there was about the third of the month.
Q. The third of this month?
A. Yes, sir.

Mr. Dickson: That is all.

The Court:

Q. Mr. Cusick, what do you mean by hanging wall quartz?
A. It is quartz that we find through the hanging wall in the shole district.
Q. And how is it different from other quartz?
A. Why, I could not say, that there is any difference—it doesn't

carry any values as a rule, and it is just stringers of quartz that are thrown through the hanging wall,

Q. Those stringers are in place are they?

A. No, sir, they are not in place.

Mr. Dickson:

Q. How is that?

A. They are not in place.

Q. Is not in place?

A. No. I don't know what you mean by the word "place."

856 The Court:

Q. Well, are they broken up, or are they in the rock where probably they were put originally?

A. Oh, broken up quartz.

The Court: I think that is all.

Mr. Dickson:

Q. Do you mean to be understood as saying, that in your opinion, either in the 2-A Raise, 4-A, 5-A, 6-A or 7-A raises, you found any quartz except what is broken, as distinguished from quartz in place?

A. I did not see any quartz in place there.

Q. None at all?

A. None at all.

Q. In any of the raises?

A. No, not in any of the raises. You might see a block there of about four feet of quartz, that is all.

Mr. Dickson: That is all.

Mr. Lindley: That is all.

Testimony of FRED SEARLS, JR., — being called and sworn as a witness on behalf of the Plaintiff testified as follows, to-wit:

Direct examination.

The Court:

Q. What is your name?

A. Fred Searls Jr.

Mr. Lindley:

Q. Mr. Searls, what is your occupation?

A. I am a geologist.

857 Q. Where did you acquire your preliminary education in the work?

A. Graduated from the University of California, department of Mining and Geology in 1909.

Q. To what extent have you followed your profession, either during your college course or since?

A. Well, previous to entering college, and for some years I have been familiar with mines, having worked as a miner in the California

mines, both along the Mother Lode, and in the Grass Valley and Nevada City Districts. For a year subsequent to graduation I occupied a position as Instructor in Mineralogy and petrography, University of California, during which year I also did some Post Graduate work in geological subjects. Subsequent to that time I have been continuously engaged in the examination and study of ore deposits throughout the western part of the United States, Canada and Mexico. I have for the past three years and a half been geologist for the Goldfield Consolidated Mining Company, and still occupy a position as consulting Geologist to that company, advising as to development work in their various properties in Goldfield and Aurora; while occupied in that capacity I have also been engaged by various other companies, particularly the Gunn-Thompson people in examination of properties throughout the country and in Mexico; I represent the Canadian Exploration company in the State of Nevada, and am familiar with their properties in Ontario, Canada. For the past three years, I have endeavored so far as I have had choice in the matter to devote my attention to the study of ore deposits in the tertiary volcanic rocks, this study having comprised a large number of the camps in Nevada, and also some similar deposits in Mexico.

858 I will say that I am familiar with a majority of the larger mining camps of the State of Nevada, and a great many of the small ones.

Q. Are you familiar with the properties known as the West End, Jim Butler, MacNamara properties, in the Tonopah District?

A. I am, yes sir.

Q. To what extent have you examined the mines in the Tonopah District, generally?

A. I have only a slight acquaintance with any of the mines, other than the properties you mentioned. With those I am very familiar.

Q. How long have you been engaged in the study and examination of the mines in controversy in this case?

A. At intervals since early last April, the whole amount of the time so spent being in the neighborhood of six weeks.

Q. The age of the rocks in which these veins occur are of the tertiary?

A. Yes sir.

Q. Will you explain to the Court the examination that you have made of these properties, the underground workings the position in which the vein or veins lie, the enclosing rocks, the occurrences that have produced the results shown in the ground, and make an explanation to the Court from your observation *at* to what you find as exhibited in the underground workings?

A. I will, yes sir.

Q. You may preface your statement with your general discussion of the vein systems, as leading up to you- ultimate deductions in the case in point?

859 A. I should like, if I might, to be permitted to discuss briefly one form of contact vein with which I have become

familiar in studying the mines in the tertiary lavas in southern Nevada and northern Arizona.

I might say, parenthetically, that I am not aware of the fact, if it be a fact, that contact—the term contact vein is limited either amongst miners or geologists to contact metamorphic deposits in which the vein minerals themselves are referable to one of the two rocks which form the contact.

I say that because amongst the California miners with whom I grew up, it is customary to signify by the term contact vein a fissure vein along which the motion that took place brought two different rocks into contact, so that the miners think of such veins favorably as being apt to have considerable continuity; experience probably having taught them that a fissure along which enough motion has taken place to bring two different rocks into contact is apt to be a fissure of considerable extent and continuity.

But that is not the type of contact veins to which I wish to refer briefly.

In the movements that have affected the southern Nevada regions, where they are covered with a pile or accumulation of sheets of different lavas, it seems to be a widespread occurrence that these movements have affected the lavas in a way that has made them move along each other so that it is a common thing in finding a contact of two different lavas in the southern Nevada country to
860 find some motion, or evidences of motion having taken place along them; and a good many fissures formed by such motion have been mineralized and become veins, so that I know of quite a number of veins in southern Nevada that have been found along contacts between two different lavas, without any large motion having taken place there, the rocks having been in juxtaposition before the motion took place.

The vein of this type with which I am perhaps most familiar is the main vein of the Goldfield Consolidated Mines Company, located about 26 miles from here, and I would like to explain briefly one or two points about that vein.

Mr. Dickson: Well, make that as brief as possible, Mr. Searls.

Mr. Lindley: Well, it is comparative. It is comparison, that is the only way they can reach deductions, by comparison.

Mr. Dickson: I think it will be sufficient to describe what is observable in that regard in this mine, as in some other mine.

Mr. Lindley: Well, do you object to it, Judge?

Mr. Dickson: If it is going to take any time, I object to it, yes.

The Witness: I can probably finish the discussion in two or three minutes; five minutes at the outside.

Mr. Dickson: All right.

The Witness: On the 600 level of the Goldfield Consolidated Mines Company, the main vein in plan occupies the contact between two rocks which are very similar to the rocks in which the veins
861 in the MacNamara West End and Jim Butler properties occur. They are called latite and dacite. The distance which the vein follows that contact on that level is about three quarters of a mile.

The Court:

(Q.) Just a moment. That dacite is quite different from *our*, is it not?

A. It is very different from the rock which is here termed the Fraction dacite breccia, being not a fragmental rock, and of some different chemical characteristics.

The Consolidated vein crops in the dacite and comes down through the dacite and at about the 600 level becomes tangent to the latite dacite contact.

It then picks up that contact, following it as a plane of weakness for a distance of about 400 feet on the dip, and the contact then having turned in a direction quite different from the dip of the vein, it enters the latite and continues in the latite to a depth of about 1,100 feet.

At that point it has run clear through the pile of volcanic rocks which are there piled upon an old pre-tertiary surface of shale and granite. And the late interesting developments in the Consolidated perhaps have——

Mr. Dickson:

(Q.) What is that?

A. The late interesting developments in the Goldfield properties have occurred at the point where the vein coming down through the latite becomes tangent to this old shale surface, and where it comes down and becomes tangent to the surface, it follows the surface to the greatest depth to which it has yet been followed. And the drifts in the lower levels, the lower 3 or 4 levels of the mine have followed contours on the old surface and picked up ore bodies existing in depressions and along that old surface.

I wish to show here the appearance of a section drawn in a direction from the Laguna shaft down toward the 604 ore body. This being roughly a sketch plan of the 600 level, a section along the line A B would show a form like that indicated between the red lines from the point X to the point Y.

The vein has followed the dacite latite contact where it has had an irregularity in strike, as shown in the plan above, which causes in the section an anticlinal roll in the vein. The vein at this point has been very rich indeed, so that——

Q. Has been what?

A. Has been very rich indeed, so that stopeing has followed continuously over that anticline on ore of the grade of a hundred dollars a ton, at least.

Mr. Dickson: I can not see the relevancy of this testimony to the question here under consideration.

Mr. Lindley: I have never in the course of my career stopped a scientific witness. We do not know the operation of his mind. He has to lead up to it. It is some of his experience that we are getting, and it seems to me that if it is not relevant, if it is not shown to be relevant, the Counsel later on when he comes to connect his testimony up may ask the Court to strike the testimony out. I think Counsel ought to let the witness go on in his own way.

Mr. Dickson: We cannot cross examine the witness upon the conditions in the Goldfield Mine; we know nothing about it. I
863 think that some latitude is given expert witnesses and expert miners in cases of this kind; they are not confined strictly to the boundary lines of the claim in controversy, or the claims in controversy, and what is developed in those boundary lines, but this is beyond any—this is latitude beyond anything I have ever heard of before, going miles away into another district altogether and describing conditions with which he no doubt is familiar, but upon which we have no opportunity or any ability to cross examine him at all.

Mr. Lindley: I recollect once hearing Clarence King on the stand in a case in Canada where he commenced with Patagonia and reached the North Pole before he got through.

Mr. Dickson: Well, you want to go to the South Pole now?

The Witness: I can terminate my remarks in about one minute, Judge.

Mr. Dickson: Well, go ahead.

The Witness: The vein being pursued upon its dip down through the latite to the shale contact that I spoke of shows there the same tendency to follow the pre-existing contact over irregularities. So that in the Jumbo Ex*n*tesion Mine, which adjoins the Consolidated, the same vein has been followed in a similar way over an anticlinal roll caused by a hogsback between two ravines in the old pre-tertiary surface.

I wish to mention these matters simply as being examples of the way in which contact veins of this type formed along fissures that have followed a pre-existent contact will frequently, in this
864 part of the country at least, take the irregularities of that contact and conform to them, so that anticlinal rolls, synclinal rolls or irregularities of that kind are not exceptional, or to one familiar with veins of that type anything to be wondered at or unexpected.

I see considerable similarity in the West End MacNamara vein to the vein which I have just mentioned, as regards the mechanics of its formation.

It has followed the contact between the Mizpah trachyte and whatever rocks underlie it, wherever that contact was not at too wide a variance with the position and direction of the major portion of the vein. In other words, it has followed that contact except at such points where a sudden and marked irregularity of the contact has caused it to break off of the contact and enter the Mizpah trachyte, just as the Consolidated vein follows the old pre-tertiary surface until the shale dips at a marked angle away from the vein, whereupon it enters the latite and exhibits a second and similar tendency at the latite dacite contact, 600 feet above.

Mr. Lindley:

(Q.) Now, Mr. Searls, you may take up this vein and proceed. Label that illustration as Searls I.

A. (Witness marks illustration.) The first time I ever entered

he properties under controversy, I went into the stope which is
narked 18 on the model, "Plaintiff's exhibit No. 2"; these stopes
eing unde- the territory owned by the Jim Butler Company and
onstituting a portion of the ore in dispute.

Following up those stopes in a northerly and upward direction, I
came to the top part of the stoped portion of that vein, and
65 there entered a raise marked 569 on that model, which raise
was then being driven by the West End Company. The next
me I saw that raise it had joined the No. 4 level at a point under
ne 488 raise.

Having been engaged in directing a portion of the work done by
ne Jim Butler Company to expose the conditions in the ground, it
ecame desirable later to drive that portion of the 569 raise which
onnects with the 537 raise. At that point the 569 raise was nearly
ull of dirt, dirt having been dumped down, I think, from the 400
vel in the prosecution of some other work, and in order to start that
aise, the continuation of that raise over to the 537 raise, which
ortion is a flat drift or winze, it became necessary to clean out that
69 raise, and I took a photograph of the point at which we started
ne flat portion of the raise to go over and connect with the 537 raise,
r to follow the vein which was at that point exposed, going into the
foot wall of the 569 raise as it then existed. I have that pho-
66 tograph here. Shall I mark this Judge.

Q. Yes, mark it Searls-2, are there two of them?

A. Yes, two of them.

Q. Mark it Searls-2 and Searls-3.

A. (Witness marking exhibits.)

Q. *So* them to counsel.

A. (Handing photographs to counsel.) The photograph marked
earls-3 was taken with the camera in a position which I now hold
y finger, being a point at which the 569 Raise left stope-16. This
the way that raise looked when we cleaned it out prepar-tory to be-
n-ing the work; the extreme left han*f* portion of the photograph
ows the top edge of the No.-16 stope, at the exact point where the
69 raise leaves it. There is seen along the vein in the back of that
ope a dark streak, which is a characteristic ore streak of the stope
om its lower portion on the 600 level of the West End mine; that
reak has quartz both above and below it and it probably represents
e silicification of the original vein fissure, the dark color being
ue to sulphides present. That streak may be seen in the photo-
aph following along the easterly side of the raise and across the
wer north face of the raise; the photograph also shows that a round
holes has been partially drilled in the raise, and one hole may be
en, which is completed near the right hand side of the raise, and
e drill is still sticking in the next hole to the left. Before we did
ny work there the raise had been driven to that point, and then a
rtical jump of about eight feet had been made, and the raise con-
nued on up in a northerly direction at a steeper dip. The Photo-
aph gives a slightly—it represents an inclined view so that to see
the way it looked in the ground, it has to be held up. The
67 tape line at the left of the raise, is hung vertical as a plumb

bob so that it shows the inclination of the raise at that point. It is practically horizontal.

The Photograph "Searls No.-2" is a slightly nearer view of the same face, and shows the black streak mentioned a little clearer, being a closer view; a small pick and the handle of a shovel shown here, on the black streak. I should like to say a word about this black streak. It is found usually near the foot wall through the stope eighteen and where seen is usually in the edge of a pillar, because it represents a portion of the vein which has been removed as ore; it is what is commonly termed in Goldfield, and I think in this camp, as an ore streak.

Mr. Dickson:

Q. An ore streak?

A. An ore streak, yes, sir. That black streak may be followed now continuously along the 569 raise where it is in its flatter course, and connects with the 537 raise, some of that being a winze, except that at one point this streak and the quartz that accompanies it, dip under the bottom of the raise for a very short distance; this streak may also be seen in stope-17 of the Tonopah Mining Company.

Mr. Dickson:

Q. What is that?

A. In Stope 17 of the Tonopah Mining Company. In order to explain or to exhibit a little more clearly some of the other characteristics of the vein from which this stope 18 has been excavated, I have prepared a section on a scale of twenty feet to the inch, a north and south section, through 573 raise, and continuing through the whole mine.

The plane of this section or the direction of its trace on the horizontal plane is indicated on the large map, Plaintiff's Ex-
868 hibit-1 by the red iine marked at its extremities "G-G."

Mr. Dickson:

Q. Have you a copy of this Mr. Searls that you can furnish us?

A. I will furnish it. I haven't it right now.

Mr. Lindley: Mark that Searls-4.

Q. I understood you to identify that as being a section along the line "G-G" shown on Plaintiff's Exhibit No. 1?

A. It is. The representation of the workings as shown upon this section has been placed thereon as a result of special surveys to indicate more exactly the contour of the stopes and raises, than is ordinarily taken in the survey of a mine; that is, the detail and the exact shape,—the outlines of the stopes and raises are shown correctly; having this detailed survey, I undertook then to place upon each one of the workings exposed the exact representation of the quartz which was exposed in those workings, and that is indicated on this section "G" by a brighter shade of red paint. This was accomplished by taking the section, surveyed underground and sketching each stringer or veinlet of quartz, on the surveyed *the* section just

as it occurred in the mine, so that to the extent that this section cuts the workings, intersects workings in the mine, it shows correctly the quartz which is to be seen upon the sides and edges of those workings. There are some difficulties in the way of making an exact representation upon a section of that kind. One of them is that where you have the section cutting a large stope, such as that shown immediately north of the West End-Eureka line, the ground has actually been taken out, stoped and sent for ore, so that you cannot see the exact plane of that section through the stopes, the veins or the plane of rocks which the section would intersect, and for
869 that reason, I have omitted the detail of the cross stringer, because I don't know just what it was, and have indicated around the edges of the stope where I can see them, the representation of the quartz. Also there is difficulty in that it would be impossible to represent upon any scale smaller than a scale of one foot to one foot, the entire amount of quartz in detail, as it occurs in this vein, for the reason that in such places as this stope, to which I have referred immediately north of the Eureka-West End line, a large proportion of the rock actually removed has been trachyte, but it has been silicified trachyte, and the silicification of the trachyte has been largely accomplished, by the medium of a large number of very fine stringers of quartz, which of course it is impossible to represent on a scale of twenty feet to the inch, and I have, therefore, put on the section a lighter red color, which represents in a more general way that portion of the rock which is impregnated with silica as fine veinlets, and also those portions of the vein which I have not been able in this section to observe exactly, because the section does not cut openings there. For instance in the block of ground between the stope referred to and that at the side of the raise from the 500-level, there is no reasonable doubt that that whole block of ground is filled by stringers of quartz varying from a fraction of an inch to two or three feet in dimension, but I have not represented them on the section because I cannot see the detail of them, and what their dimensions and position are. The position of the cross section is as was stated, shown on the map by the line "G-G"; as will be observed on that map the section does not cut exactly all of the workings that are shown upon section "Searls-4," but there has been very
870 little projection, that is projections for only short distances,——

Mr. Dickson:

Q. What do you mean by short distances? What is the maximum projection?

A. About twenty five feet. The Maximum projection occurs in projecting a portion of the 712 cross-cut onto the section, where it is distant some twenty five feet in the vicinity of station 712-3.

Now where a working is not cut by the section it is impossible to project upon the section each individual stringer in its own direction up to the section, because stringers are so ramifying that such an attempt would be further from the truth than to project bodily the face of the working, which is actually sketched in a note book onto

the section and show it as it is seen in the ground, although not the exact position in the ground which this section intersects; so portion of the 712 cross cut has been projected on the section in th way. It does not represent the exact detail as regards stringers quartz that would be seen if one could see the face of the grou which the section cuts, but it does represent the exact detail as se upon a portion of the 712 cross cut, which is projected bodily in the plane of the section. This has been done in a few short i stances.

Now the black streak which I referred to a few moments ago, m be seen at the 600 level, where the stope, as shown upon this secti departs from it, and there enters the floor of the level. It is n seen again below that, except in the stope which has been excavat by the West End company, under the floor of that winze mark "winze" on exhibit Searls-4.

Mr. Dickson: Show that on the model.

A. It is not shown I think on either model.

871 Q. Does it lie between the Fraction vein and the south di ping vein, as we call it?

A. No, sir, it lies under both, or, rather, is the lower portion what you term the south dipping vein. That streak is beginni to show in the very bottom of the winze, so it is my opinion that t winze was put down on what might be termed an upper strand the vein.

Mr. Alling: 700 winze?

A. The 600 winze of the West End company, and certainly in portion of the winze where the stope is shown the better portion of t vein lies under the winze, and the winze itself is driven down silicified trachyte, with stringers and veinlets, and fragments quartz all through it, and this condition persists up into the hangi wall of the vein, into the 712 cross cut, a distance of thirty f vertically, and there is no reasonable doubt that the block of grou vertically below the 712 cross cut down to the winze is simply fil with ramifying stringers, although the section is not opened up observation so that one could place on here the exact way in whi all these stringers occur. The black streak that I referred to can traced up the stope rather continuously along the foot wall of t stope. It is seen for instance in the 500 level where the section c it; it is also seen in the foot wall of the stope under the Eureka-W End line, and I referred a minute ago to the five hundred level- meant an intermediate between the five hundred and six hundr level; also seen in the 500 level between the stope referred to and t drift, from which the raise was put up to the vein, and may be se rather continuously, except where the stope is filled, up the 573 ra

and may be seen at the little intermediate drifts, shaded

872 above the word 573. It is accompanied, as here shown a rather massive vein of quartz, and this massive vein quartz can be traced continuously along the flat part of the 5 raise to where it turns over a winze, and down to the point where is shown, to rather become smaller and a portion of it to disapp under the foot wall of the workings just below the mark "M. 7

under the 461 raise. There is right under the 400 level, just west of the point where the word "461" occurs a smaller segment of the same vein or ore streak dropped down by two little faults, so that the detail of this kind, shows a break in the vein there which is, however, not the full width of the quartz there displayed.

873 As shown by the red coloring above the stopes, and between the stoped portions, it is my belief, and I think a matter about which there can be very little question, that as many stringers exist through that shaded portion, as shown to exist by the 712 cross cut.

The quantity or amount of stringers in the hanging wall of the main stoped portion of the vein is a variable quantity, however, There are cross cuts in the mine, as for instance, the 722 cross cut in the Jim Butler, which is nearly barren trachyte, very few quartz stringers in it. And there appears to be perhaps some local differences of that kind which may be the result of a cracked or disturbed condition of the hanging wall over some inequalities or irregularities of the vein.

The 461 raise is not intersected by this section, but is projected a few feet on to the plane of the section. And the quartz there displayed is as exact a representation of the quartz as it occurred in that raise in reference to the gouge and to the walls of the raise as can be displayed on this scale.

As exhibited by the section, there seems to be no reasonable doubt, in fact, I am very sure that the vein which is shown in the winze below the 600 level, and in the stopes between the 6 and 500 levels of the West End working, continue up the 573 raise and is followed by the flat portion of that raise where it turns into a winz*w* downward to the north as one contin-ous vein.

In the hanging wall of the 461 raise is shown a heavy gouge which has been referred to heretofore as the Siebert fault. This gouge in that raise does not occupy the position of a hanging

874 wall to the quartz that occurs in the raise. The quartz occurs as ramifying stringers, two of the most important of which have a sort of anticlinal roll across from one side of the raise upward and down again before they enter the foot wall of the raise, conforming somewhat to the anticlinal roll of the vein beneath. And those which occur in the raise above that—of those which occur, the most prominent one is cut off and dragged by the fault gouge which shows in the top of the raise.

This section is very interesting as indicating the probable displacement of the Midway andesite by the Siebert fault. The section runs very close to the 400 level of the Jim Butler and the 420 raise, and upon that 400 cross cut near the side line, the bottom of the Midway andesite is seen to have the configuration which is represented on this section; dipping downward toward the north into the top of the cross cut, and then rising and cutting the side line raise, also called the 420 raise above the drift and going up toward the north.

The Midway andesite is next shown in the vicinity of this section in the McQuillan shaft, and in the 488 raise, as being only slightly above the Siebert fault in this latitude, so that there is no doubt but that the andesite which was rising to the north has been fauited down

by the Siebert fault a distance of in the neighborhood of 150 feet in this section.

There are shown in the foot wall of the section two rocks. The
West End rhyolite and the glassy trachyte, which are in-
875 dicated by the symbols W. E. R. and G. T. respectively.

Throughout the whole length of this section the main West End-MacNamara vein is shown to be a contact vein between the Mizpah trachyte and the rocks which underlie it.

The rather irregular appearance of the glassy trachyte and the West End rhyolite is referrable to the fact that the section cuts these rocks very near an irregular contact which in a general way has a northerly and southerly trend, so that the section is nearly parallel to that irregular contact.

In the Tonopah Mining level—Tonopah Mining No. 6 level, about one hundred and fifty feet easterly of this section, the rock in the footwall of this vein throughout the entire crosscut is glassy trachyte, and I selected three samples from that rock. What shall I mark these, Judge?

Mr. Lindley:

(Q.) Searls, following the sequence: Searls 5, 6 and so on?

Mr. Dickson: As I understand, there is no dispute in the evidence on either side that in this section the footwall rock is glassy trachyte, and the hanging rock is Mizpah trachyte.

Mr. Lindley: You called it all trachyte, I think.

Mr. Lindley: No, we distinguished between glassy trachyte and the overlying trachyte with the first witness we put on the stand, Mr. Wiley, on that section. I do not care a great deal about it.

The Witness: I marked these "S. 5," "S-6," and "S-7," respect-
ively. These are samples of glassy trachyte and show what
876 the glassy trachyte nearly always shows, a flow structure. Before I took these samples from the ground I marked with a hand level a horizontal position along the fragment of rock, and on one end of the line marked an arrow to represent a northerly direction. This sample was taken from this crosscut about fifty feet northerly of the footwall of the vein, where intersected in that crosscut. As may be seen in the sample——

Mr. Dickson:

(Q.) What crosscut do you refer to?

A. The six hundred crosscut of the Tonopah mining. As may be seen in that sample the flow structure has a southerly dip. It intersects the hand level line on there at an angle of about twenty degrees. The sample marked——

Q. Mr. Searls, will you just step here and point out on this "Plaintiff's Exhibit 1" where the sample was taken?

A. Yes, sir. Taken on the six hundred level at about that point (indicating).

Q. Designate so it will be in the record if we should want it.

A. I will designate that as "S. 5." At about the point marked "S-6."

Q. Just a short distance east of the east end line of the West End?
A. Yes, sir. At about the point marked "S-6" I took the sample which is marked "S-6" and also marked "2." I did not put any line on that. Did not need to put any line on it because, as shown in the crosscut there, the flow structure was horizontal. The rock lay in the crosscut in the position which I now hold it, and the lines of the flow structure can be seen extending in a horizontal direc-
877 tion.

The sample marked "S-7," and also marked "3" was taken from a position near the point now marked in pencil on "Plaintiff's Exhibit 1" as "S-7," and the flow structure, as shown in relation to the hand level line there dipts to the north, so that the flow structure of the glassy trachyte in that section underneath the vein exhibits the same change or dip from a southerly direction to a northerly direction as one goes north in the crosscut. And the flow structure is commonly—Commonly represents the position in which the rock in which it occurs lay in the ground, in which it was spread out because the lines are representative of the direction in which the magma flowed while it was cooling.

The Court:

(Q.) That is assuming that it was undisturbed since?
A. Yes, sir. I might qualify that statement also by saying that there are exceptions to that, because flow structure is sometimes at an angle to the direction in which the greater areas of the rock exists.

Raises 571 and 573 were extended to the north following the vein which has been stoped in stope 18, in the same way as raise 573 is shown to do in Section G. The vein in each of these raises is very clearly and definitely shown as turning over from a southerly to a northerly dip, extending down to the North as far as the raises extend.

There is—the actual structure of the quartz, as followed up from the stope and the main band of quartz stoped in the stope
878 turns over and follows these raises and exists in them in a position which indicates, to my mind, very clearly that the actual ore streaks, and the vein itself turns over and is not terminated by anything.

Upon the Siebert Fault which has been referred to, a number of raises have been put up in the easterly end of the mine, I mean raises 488, 461, 2-A, 4-A, 5-A, 6-A and 7-A.

No one of these raises follows any continuous vein, Raise 488, the first time that I entered it was driven up diagonally, following for a short distance the Siebert Fault, then driven through the Fault and away from what stringers of quartz underlay it, into the cap
879 rock. Subsequently more work has been done there so that at present the raise follows the Siebert fault to its face, and below the fault stringers of quartz are seen intersected by the fault.

Raise 2-A follows the fault in a similar manner, and has a number of stringers in the trachyte underneath it. I have in my note book a detail of that raise. This detail was sketched in the ground. I

have marked this "Sketch-8" it is a sketch made underground of the 2-A Raise as it existed last May.

Mr. Lindley:

Q. Made to scale?
A. Made to a scale of——
Q. What scale?
A. Ten feet to the inch. Extending along the back of that raise, from its bottom to its top, is seen a heavy gouge which is the Siebert Fault. Indicated in red on the Raise is all the quartz that occurs in that raise up to that time. I believe that the raise has since been extended a few feet. The stringers of quartz which are there shown are not conformable to the gouge, which exists along the back of the raise, but run in various directions, and each and nearly every one of them are seen to be terminated by the gouge of the fault.

In the middle portion of the raise, a strand of the fault has broken off from the portion which is in the hanging wall, and exists as a gouge plane, about half way down the raise, and quartz may be seen below and above that, being these stringers which occur between the two gouges, being terminated on each end. At the bottom of the raise near the stope, two heavier stringers of quartz are seen, which here, as is very frequent in these raises, appear to have an anticlinal or rolling form.

The similarity of these stringers to those which exist in the
880 712 cross cut, and in the 600 winze above the vein, or comprising the upper portion of the vein, and in the 400 level and workings shown upon this section, "Searls-4" immediately under the 400 level, and in the 461 raise, is very striking.

In the 4-A and 5-A raises, there is a good deal more quartz than is in either 488 or 461, or 2-A. In each of these Raises the quartz attains a width in some spots, I think, of three to four feet. And in the 5-A Raise it is persistent up the raise for some sixty feet in a position which makes only a slight angle with the Siebert Fault. At the upper extremity this stringer or vein of quartz turns up suddenly and is cut off by the Siebert Fault, so that drag pebbles and fragments may be seen where th- gouge intersects and terminates it.

Mr. Dickson:

Q. That is 5-A.
A. That is in 5-A. At the bottom of that raise—the other end of that quartz is seen to go down from the bottom of that raise, so that it does not follow the raise to its lower extremity. In the little raise which is driven from the A-stope, vertically up to that 5-A raise, there are very numerous stringer- of quartz, one of which is four or five, perhaps as much as eight inches thick, extending vertically, that particular one, and others ramifying in other directions; so that to my mind the conditions as shown in those raises is exactly what might be shown if a heavy gouge were to be passed through the country in the 712 cross cut, and running off in any direction. A number of stringers of quartz would then be seen abutting on the

gouge, but the conditions as there represented would not be that of a raise or working following a continuous vein.

881 If the Siebert Fault did not occur in the A-series of raises, there would be nothing there different from the hanging wall country rock above the vein in a great many places throughout the West End and MacNamara Mines.

A similar condition to that shown in the 2-A, 7-A series of raises is also shown in the A-Raise in the MacNamara ground, as shown on Plaintiff's Exhibit-2. This raise has been driven up on the Siebert Fault, which is tangent to the vein at a point west of the bottom of the raise and follows up upon that fault at an angle oblique to its dip and strike. A number of stringers of quartz can be seen in that raise, and near what was its top yesterday, quartz to the width of a foot or more can be seen coming up from the floor of the raise, at an angle or dip of sixty degrees, or thereabouts, and being terminated and cut off by the Siebert Fault which forms the gouge, in the back of the raise.

This same gouge is seen in the 262 Raise, near at hand where it is shown clearly to fault the fraction dacite breccia cap rock, throwing it down to the north in the hanging wall, to the northeast and is continuous down that raise, and may be traced without a break into the 252 raise; 258 raise it is marked here.

The Court: This case is continued until two o'clock this afternoon.

882 Afternoon Session, Two o'Clock P. M.

The Court: The Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

Direct examination of FRED SEARLS resumed:

Mr. Lindley:

Q. In your testimony Mr. Searls, you were discussing what?

A. I was discussing the Siebert Fault on the 200-A raise and the adjoining Raise.

Q. Well, now, before taking up the Siebert Fault for a definite line of examination, I would like to ask you to make some comparisons with reference to the gouge in the Siebert Fault and the gouge or parting, if there is any such, that appears in connection with the hanging wall of the vein. Have you made observations in the ground to determine the character of the parting in the hanging wall section in this mine, particularly in the neighborhood of the axis of the anticline?

A. I have, yes sir.

Q. Can you make a comparison between the gouge that appears on the Siebert Fault, and the gouge that is shown to form the hanging wall of the main vein? If, so, make that comparison, and state the differences if there are any?

A. There are certain places in both the north dipping and south dipping legs of this anticlinal vein, where a considerable amount of

gouge is observable on the walls of the sope, and upon the hanging wall of the vein where developed in drifts; that is particularly
883 true of the south dipping leg of the anticline along the four hundred level in the vicinity of 440 Raise, and a section of the level immediately east of that, which — labeled 400 West End, where those letters occur. The gouge here and on the stopes below throughout is referable to a post mineral fault which has been referred to as the Siebert Fault.

Q. As the Siebert Fault?

A. As the Edwards Fault,—and which follows the hanging wall of the vein for a short distance—for some distance.

Q. But away from the absence of faults such as the Edwards Fault, which you have explained, what is the normal condition of the hanging wall of the main vein as to gouge?

A. Aside from that area and the area in the north dipping leg of the anticlinal vein, where the Siebert Fault is tangent to the vein there is comparatively little gouge in the hanging wall of the stopes or the vein. A little dry gouge may be seen in places, as is indicated in the stope under the Eureka-West End Line, on section "G-44" and also in places in the MacNamara stopes. The Siebert Fault——

Q. With reference to that hanging wall is there any ore in place that has not been stoped there, from which you can determine the character of the hanging wall,—in the shape of pillars or anything?

A. Yes, the Siebert fault leaves the hanging wall of the north dipping limb of the vein in the MacNamara ground in a line that passes near the foot of 200-A Raise, or A Raise as it is called here, and runs through the extremity of the MacNamara,—near the extremity of the MacNamara 186 level, and near point 185 on the MacNamara 200 level, and from there in a general north-
884 easterly direction, and the MacNamara stopes to the north-west of that—as evidenced by the hanging wall of the stopesm where seen, and by the edges of the pillars and edges of the stopes, where the ore and total contents of the vein can be seen—does not in any place exhibit a hanging wall gouge, which is comparable at all, to the amount or character of gouge which occurs on the Siebert Fault, and along the hanging wall of the vein where the Siebert Fault is tangent to the vein.

Q. You have spoken of this vein as being a contact vein throughout the major part of the area involved here?

A. It is.

Q. Are you able to trace that line of contact with a black pencil in Plaintiff's Exhibit No.-1, to show just exactly where this vein in Plaintiff's ground appears as a contact vein?

A. I think I can do so.

Q. Please do so. Draw a heavy black line.

A. I just want to outline it first. (Indicating.)

Q. What have you written along that traced line?

A. I have written along that line "Contact vein to north and east." That line represents approximately the line at which the vein becomes tangent to the contact, and to the north and east of this it is a contact vein; it is not an exact reproduction or representa-

tion of that line, because the contact is irregular and the line at which it becomes tangent is necessarily a crooked or irregular line, and the line traced on the map represents it approximately.

885 Q. Now, Mr. Searls, there are two important features in connection with this case that I wish you would take up—have you said all that you wish to in regard to the contact?

A. I explained that this morning.

Q. In your previous testimony, yes. Now, there are two important features in this case to which I would like to invite your attention, to be discussed under separate heads. You have testified with regard to the position of the Siebert fault, or its occurrence and the fact that certain raises were made upon this fault. I wish you would now in the sequence in which the question is put indicate first the position of this fault in the ground, and the date upon which you have determined it?

A. As has been previously testified, the fault occurs at the eastern end of the area mapped upon this mode, in the 500 Tonopah Mining cross cut at a point marked on the Plaintiff's exhibit 1 plan map, 25 feet north of T. I.

Mr. Dickson: Just where is it?

A. From there going westerly it is developed in the 488 raise, in the drift westerly toward the McQuillan shaft, in the 461 raise, in the back of the A stope, where it is tangent to the vein.

Mr. Dickson:

(Q.) In the A stope?

A. So lettered on the——

Mr. Lindley: That is the A and B stope, you know.

Mr. Dickson: Should be 2 A. Referred to in ours as 2A.

Mr. Lindley: This is the A and B stope which has been recently connected with an upraise.

886 The Witness: Now, in the 2 A, 4 A, 5 A, 6 A and 7 A raises. In the 496 raise, where it slices through an upper strand of the vein and displaces it. In the 494 raise, where it is developed at the point where the raise breaks into the A stope, and at the top of 2 small vertical raises which have been made upward from the main portion of the raise.

It may be seen in 466 raise, a short distance above the 400 level. May be seen in the extremities of the short cross cuts in the MacNamara ground, not lettered on the model, Plaintiff's exhibit 2, but near Stations 1041 B, 1041 A and T 17.

Mr. Lindley:

(Q.) Of Plaintiff's exhibit 1?

A. Plaintiff's exhibit 1. Where at the last three places it is not parellel or conformable to the vein which lies underneath it. It is seen on the 300 level, on the 200 level, in the 366 raise between the 300 and 200 level in two points; in the MacNamara 300 level, in the back of the small, irregular stopes just east of stope 13, near point 1077, and the stopes in which the figures M 78 occur.

It may be seen departing and diverging from the vein in the drift near the point 1077, the drift from that point on the 300 level following the vein toward the MacNamara shaft, and the Siebert fault diverging at an angle of some 20 degrees to the north.

Also in the 200 level of the MacNamara, where it is represented in blue, occurring along the drift at the termination of which the letters 45 C occur on the map, Plaintiff's exhibit 1.

887 It is seen tangent to the vein in a small portion of the MacNamara stope 7, where the vein rolls over to a southerly dip, and in the end of the 186—the southeasterly end of the 186 level of the MacNamara, it is followed by raise A, and is developed rather continuously in the 252 raise, from which a working has been recently been driven to approximately an intersection with raise A.

Q. That working still being carried on, there are some shots to be fired, is there not?

A. Yes, there is a round drilled in the face that has been there for a day or two and has not been shot.

Q. You expect it will be shot shortly?

A. I think so.

Q. That work is being done by whom?

A. By the West End Company.

Q. Under the direction of our engineers?

A. Yes sir. The fault may also be seen in the 195 intermediate, at the bottom or where it intersects the 252 raise and goes into the hanging wall of the raise, or into the upper and eastern edge of the raise, at a point a few feet below the 195 intermediate. From there on it is not seen in the 200 level below until you reach the shaft cross cut, the level being extended in the vein at the point where it has a northerly and southerly strike, being in and under the roll of the vein.

Q. Those are the points where you say that the cross cut is in evidence—or the fault is in evidence?

A. Yes sir.

Q. In making your deductions as to the condition of that vein, is there any negative evidence that you correlate with your

888 positive evidence for the purpose of determining the position and shape of this fault? For instance, by way of the absence of its appearance in other workings?

A. Well, the shape of the fault is shown in other places, as in the 500 Tonopah mining cross cut where it is shown at a point about 56 feet from the vein into the hanging wall or into the north country, very flat and nearly horizontal, in fact. And the fact that it diverges from the hanging wall of the vein and does not follow it is shown in the 537 and 533 A raises, which have penetrated the vein to approximately their tops and which, at the last time I was there, had not reached the Siebert fault, they are being extended with that expectation.

Q. The work being carried on at this time?

A. I hope so.

Q. Who is in charge of that work?

A. The West End C-mpany are doing it for the Jim Butler Company.

Mr. Lindley: Of course, I know that Counsel will ask them to speed up as rapidly as they can.

Mr. Dickson: Well, have you had any cause for complaint? I have not heard of any complaint.

Mr. Lindley: Well, I do not want to make any complaint.

Mr. Dickson: This is the first intimation I have had that there was any complaint.

Mr. Lindley:

(Q.) Now, you may proceed, Mr. Searls.

A. I do not know that I fully comprehend what you mean by negative evidence. I think -here is a good deal of negative evidence on the question of whether or not this fault forms or comprises the hanging wall of any vein, because of its not con-
889 forming with the usual attributes or characteristics of hanging walls which ought to be parellel and conformable with the vein material that underlies them, and to follow the vein throughout its course and form the roof or top of the vein.

Q. Well, the data that you have enables you to state the form and s-ape of that fault and its position with relation to, and its effect upon this vein, if any?

A. Yes sir.

Q. Then, just please explain now the relationship, the shape of this fault, and the relationship it bears to this vein, if any, and the extent to which it intersects or scores or cuts or faults the vein, if it does so?

890 A. The shape of the Siebert Fault as exhibited on the model, Plaintiff's Exhibit-2, can be seen fairly well; it occurs in the places testified to and is so represented on this model in blue paint, and may be seen to have a flat or trough shaped form with a northeasterly dip, and a form concave upward, departing to the north from the vein, as one goes to the northwest along the vein, and departing also from the vein on its dip, shown in the points mention- 537, 538-A and the Tonopah Mining Cross cut.

Q. You have stated in your testimony that at certain points the Siebert Fault is tangent to the vein. What do you mean by that, please explain it?

A. By being tangent to the vein, I mean that for a portion of the area of the vein, and for a portion of the area of the Fault, or plane of the hanging wall of the more solid portion of the vein, coincides with the plane of the foot wall of the Fault the Fault having followed that hanging wall perhaps as a plane of weakness in some such way as the original fissure followed the contact.

Mr. Dickson:

Q. How is that?

A. The Fault having followed for a portion of its area the plane of the hanging wall, as a plane of weakness, in the same way that the original fissure of the vein followed the contact for a portion of

its area. There are a few places where the fault has scored off or cut away a portion of the solid part of the vein; one of these is rather clearly shown in 496 Raise. We apprehended at one time that it would also be shown in 494 Raise, and put up the two vertical parts there to find out if such were the case or not.

In the vicinity of stope-14 of the MacNamara, the vein is
891 rather thin and the appearance is that the Fault has perhaps sliced away a portion of the upper part of the vein. Aside from this break in the solid portion of the vein the action of the fault upon the vein has been limited to the scoring away and moving and faulting to other parts of the country the stringers or hanging wall veinlets, which proceed out from the solid part of the vein in the hanging wall rock. For instance in the MacNamara, below or to the northwest of the line of intersection or tangency of the fault of the vein, such stringers are in evidence in most of the workings in the hanging wall of the vein, and to the northeast or the southeast of that line of tangency where the fault and vein are tangent, there are no hanging wall stringers in the vein to speak of.

Q. Does the Siebert Fault at any place cut or intersect and fault the main vein?

A. No point that I have ever observed.

Q. Well, if there had been would you have observed it?

A. I would have if it occurred in this ground.

Q. Have you any further suggestions in connection with the Siebert Fault and its relationship to this vein?

A. Why, I think that it is of post mineral character, as evidenced by the fact that it sheers, and cuts off the hanging wall stringers or ramifying veinlets from the main vein, and that is in accordance with the other observed facts, testified to this morning, that it cuts the cap rocks which are later than the vein. That is, one of the rather evident things I think, that if the rock is later than the vein, and the fault cuts the rock, that the fault must be later than the vein, and its displacement of the Midway audesite as shown in section "S4" and its displacement of the Fraction dacite breccia as shown in raise 252, are in accord with the
892 other observed facts, which demonstrates its post mineral character. One other criterion, which seems to me is a criterion ordinarily used by geologists in determining relations of one fault or vein to another, can be used here; also in that there are a large number of transverse faults which cut the vein and displace it a few feet and which themselves are terminated and cut off by the Siebert Fault, so that we have in this phenomenon further evidence of the post mineral character of the Siebert Fault. It is later than the faults which cut the vein; that may be rather clearly seen in a number of places in the mines, and particularly in the workings of the MacNamara on the north dipping limb, immediately northwest of the line between the West End and MacNamara on the 400 level.

The Court:

Q. Does the fault show on the surface at all?

A. I think not. It is obscured by the wash and debris; it crops for a portion of its distance through town, that is through the residential part of town, the age of the fault is such of course that any scarp that it might leave on the surface by reason of displacement, would be eradicated, subsequent to the time that it was formed.

The Court:

Q. There are faults in this district that show considerable scarp?

A. Those scarps are usually not referable to the actual displacement upon the fault, but to the fact of their having brought rocks of a different degree of induration against each other, and in which case one weathers so much more rapidly than the other, that the fault is shown by the process. However, there are a large number of faults, particularly out in Railroad Valley——

The Court: I meant in this immediate vicinity.

893 A. And through the country that show their scarps by reason of very large displacements. The fact that the Siebert Fault is a different fissure from the vein, or any part of the vein fissuring is indicated by the difference of angle of striale upon the fault and the vein; the stringers upon the Siebert Fault have an average course in the vicinity of north sixty east; the striale on the vein, conform, wherever I have seen them, with the course of the nose or crest of the anticline, are to the south of east.

Mr. Lindley:

Q. Speaking of this disintegration on the surface of the fault, as it form- scarp,—do I understand you to say that is where the rock on one side is harder than the other—that disintegration on one side is more rapid than the other?

A. That is what I——

Q. That is to say that the rocks were not homogeneous, and for that reason they left a scarp or line which could be observed on the surface?

A. That is one way scarp can be seen, long after the displacement upon the fault has ceased.

Q. But where the fault is in homogeneous rock, and the rock is the same on both sides, the action of the weather acts on the whole at the same time,—there is no scarp there?

A. That is true of faults of moderate displacement; faults of very large displacement, such as those that form mountain ranges throughout this country, sufficient time has not elapsed since their formation to eradicate this scarp.

Q. But in instances we have under consideration here, considering the position of the fault and the enclosed rock, what have you to say with regard to the elimination of the line of faulting, so far

894 as scarps are concerned?

A. The Siebert fault being a flat fault, would be a fault, if all of its scarp were in evidence still, would leave a flat surface and a large part of its surface was originally in Fraction dacite breccia, or in altered volcanic rock, and the eradication of the com-

paratively flat slope was probably accomplished during the process of formation of the fault.

Q. Well, that is all that you have to say about the Siebert Fault, illustrated everything that you think of in regards to that?

A. I think that it covers my conception of it.

Q. Now, with reference to the western termination of this vein—this vein terminates on its westerly course against what?

895 A. Terminates against the fraction dacite breccia cap rock.

Q. Can you briefly give us the genesis of that cap rock, and the geological circumstances under which it was placed in its present position? The character of the rock, in the first place?

A. The Fraction dacite breccia is what is called a pyro-clastic rock. It is a rock which had its origin from violent ejection from a volcano. A portion of it probably fell upon the ground in the way in which it is now found. Other parts of it show evidence of having been mud flow and the whole formation is an accumulation of ejectementa from a volcano which came in its present position through more than one kind of action.

Q. Call it fragmental rock?

A. It is a fragmental rock, P*ryo*-clastic. A portion of that formation which occurs within the boundary of the West End claim lies upon a comparatively steep slope, which dips or slopes rather to the south west. As we follow the vein along the levels or follow up raises put up along the vein, or in cases follow upward along the stopes constructed from the vein, we come against the termination of the vein where it is buried and covered up by this fragmental rock. The line at which this occurs is shown pretty well upon the model, Plaintiff's Exhibit 2, and crosses both side lines of the West End claim in a direction of about north 12 degrees west.

The character of the edge of the vein where it comes against the overlying pyro-clastic rock is such as to leave very little doubt,

896 in fact no doubt in my mind, as to its nature. That is the outcrop upon this hillside of the West End MacNamara vein, as it occurred before it was buried by the Fraction dacite breccia. The usual evidences of an outcrop, such as oxidation, the presence of float, and the broken character of the vein are evidence in every place which I have seen in this vein in contact with the breccia. They are as evident on the 600 level as they are on the 300 level and the stopes above it. From this outcrop the vein departs in a direction sloping to the south east. From any point upon the outcrop, a line drawn in the direction either of the local dip of the vein at that point, or of the general dip of the vein lies within the vein; or in other words, one can follow out further upon the 500 level than you can upon the 400 level, and farther upon the 400 level than you can upon the 300 level before it comes to this terminal edge of the vein against the breccia.

Q. Speaking of this float, this float is found embraced within the overlying Fraction dacite breccia?

A. There is—this float occurs along the old surface under the Fraction dacite breccia, the old slope down which the vein cropped in previous ages, and *it* also found for a moderate distance above that

slope embedded in the Fraction dacite breccia. The Fraction dacite breccia, however, at its base is slightly different from—has a slightly different appearance from what it has further out into the mass of the formation, as out along 300 West End, and represents in many places the actual old soil.

Mr. Dickson: The actual what?

897 A. The actual soil or ordinary detrital accumulation along the old surface before the breccia *case* out upon it. So we find this float from the vein not only upon the Mizpah trachyte underlying the vein, and along its slopes, but also to a moderate distance out into the Fraction dacite breccia, which at these points represents, as I stated, the old soil.

Q. I hand you a sample, which you may mark "Searls' Exhibit 9," and ask you whether that would represent anything that you have described in reference to the inclusion in the Fraction dacite breccia of a segment of float?

A. I have marked this specimen, "S. 9." It represents the character of the float which is found along the vein along the terminal edge of the vein against the breccia, and the rock in this instance, is made up of some fragments and of a mass of finer material which is probably originally small fragments of Mizpah trachyte. And imbedded in this as an old soil, since kaolinized, we find the fragment of oxidized quartz entirely similar to the oxidized quartz which occurs attached to the vein at its edge or apex.

Q. Do you know where that sample came from?

A. I do not.

Mr. Lindley: I will tell you, if you would like to know, Judge, without putting another witness on the stand. I saw it in place last night, and under our directions, it was cut out by Mr. Fox and brought up here.

Mr. Dickson: You can state what place it came from.

Mr. Lindley: It came from the face of the 300 level, the Western termination—where the red ends on the model. Some little
898 distance from the terminal edge, a short distance. Take the witness.

Cross-examination.

Mr. Dickson:

(Q.) It is true, generally, is it not, Mr. Searls, that all fissures opened by any forces or stresses of nature seek the line of least resistance?

A. I think that is true, but that question involves also a consideration of the direction of the stress, as compared with the line of least resistance. I would not say that a stress at right angles to a plane of comparatively easy resistance would follow that plane.

Q. No, I do not mean that. Imagine a force, some force of nature that has opened a fissure, and in the direction in which the force is operating to create the fissure as a fissure is opened along that course, we will suppose it approached closely to a line of lesser resistance—strike that out. If you have a fissure opening along a

course, which course came near to a line of contact, which line c
contact between different rocks would afford a line of lesser resistanc
than that in the homogeneous rock, would you not expect that th
fissure would depart from its course through the homogeneous roc
and take up the line of lesser resistance found at the place of co
tact between different rocks? I do not know whether I make my
self clear or not, but I think you understand what I mean.

A. I think that would be true if there were not a larg
899 angle between the primary direction of fissure and the dire
tion of the plane of resistance which you have supposed.

Q. Anything near approaching parallelism?

A. For instance, if there were a hump, a roll of any kind, a fissu
might follow that as a split in a stick of wood will follow around
knot. It would not perhaps depart from its previous course at
very large angle to follow that.

Q. Well, I am not taking very large angles. I do not mean whe
there is a very large angle, necessarily, in order that it might depa
from the homogeneous rock, which it had traversed in part and tak
up and follow thence the plane of contact.

A. I think that is a question of the nature and direction of th
stresses, as referable to the direction of the plane of weakness whic
you have supposed.

Q. Well, ordinarily, the plane of contact between different roc
would afford a line of less resistance to a fissure opening than th
homogeneous rock would, would it not?

A. I think that is true, particularly in the volcanic rocks of th
region.

Q. It is those we have to deal with here. This fissure or the
fissures in which this vein or these two veins is found traverse i
part a homogeneous rock, cut through it in their downward cours
as well as their longitudinal course?

A. They did, yes sir.

Q. What is your explanation of the fact that the fissu
900 did not follow the plane of contact throughout, but departe
from that line of lesser resistance and took its course onwa
through the homogeneous rock, both longitudinally and downward

A. The explanation of that is found in my previous answer, th
the line of contact at a certain position of longitude in the min
namely, about between sections 8 and 9, took a rather marked di
to the west, so that the——

Q. What did?

A. The line of contact between the West End rhyolite and th
Mizpah trachyte. So that the vein, in following its course throug
out the major part of its extent came to a place where the conta
had a sudden irregularity, a sudden plunge to the west.

Q. Point that out, please? What you have in mind, on th
model?

A. Yes; it is shown about where this line marked "Contact ve
to the north and east," on Plaintiff's Exhibit 1.

Q. Well, I would like you to point it out on the model, so I ca

understand it better. Show where there was any abrupt change in the course or dip of the contact?

A. That is well shown by the cross cuts above from the MacNamara and from the west end sides, running into the footwall.

Q. Which cross cuts do you refer to?

A. I refer to a cross cut in which the figures R 554 occur, on Plaintiff's exhibit 1, and in the next cross cut to the west; the next one to the west, and also one to the east. Now, in the shaft
901 cross cut on the No. 5 level west end, and in the drift running to the west thereof, west end rhyolite is found throughout in the foot wall of the vein.

902 In the cross cut along which the figures 524 occur, Mizpah trachyte is found nearly to the face, and the rock in the face is a little uncertain. And in the other three cross cuts mentioned lying immediately West of those Mizpah trachyte is found so that it is certain that the contact between the West End rhyolite and the Mizpah trachyte, as it continues on its course rising to the west from the Tonopah Mining line, we will say, or from the contact with the glassy trachyte comes into about this longitude, between section- 8 and 9, and there has a rather sudden downward course or dip so that the vein——

Q. Which has?

A. The contact, so that the vein in following upward to the west along this contact came to this irregularity or sudden downward turn of the contact and unable, because of its large area to conform itself to that marked irregularity, and took a course rising to the west through the Mizpah trachyte.

Q. Regardless of the contact?

A. Yes, sir.

Q. Now, coming to the Siebert Faulit as shown upon this Searls Four, what is the angle of the dip of the Siebert Fault as shown upon that section, from which it is represented as having been cut in the sideline raise down to the words 461 Raise on that section?

A. Forty-two degrees.

Q. How much?

A. Forty-two degrees.

Q. In-stead of stopping at the 461 raise take it on down to where it is represented as running—changing from that 42 degree dip to a practically horizontal course, from thence northerly?

A. Thirty four degrees.

Q. What is that?

A. Thirty four degrees.

Q. What is?

903 A. You asked me if I understood you for the dip between the—the average dip between the points where the Siebert Fault was intersected by the side line raise and the point at which it—(indicating).

Q. Yes, that is thirty-four degrees?

A. Yes, sir.

Q. What is the angle of the dip of that fault from thence northerly, as shown upon that exhibit?

A. It passes through a transitional curve, in the immediate vicinity of the bottom of 461 Raise, and departs northerly on a dip of about three degrees or four degrees.

Q. At the bottom of that line of dip, the average of which you have given as thirty-four, the Siebert Fault is in close proximity to the contact in which the vein is found?

A. Yes, sir.

Q. And there, instead of continuing its course downward to the contact and then following along it, it turns abruptly to an almost horizontal——

A. In this section, yes.

Q. What?

A. In this section. The explanation of that is found in the fact that the motion along the Siebert Fault did not occur in the plane of this section, but that the mass of the rock in the hanging wall of the Siebert Fault moved down this way in a direction at right angles with the section—(indicating).

Q. As I understand you, speaking generally this fault, on the surface or where you have it in the highest workings is quite a steep fault, until you get down just over the northerly crest or about the northerly crest of the fold, and from thence on in a northerly course it is flat, perfectly flat?

A. That is the way that it is shown in Mr. Spur's cross sections, and that is the way that it occurs here. I have very few sec-
904 tions which continue this high up upon the fault, to develop that fact.

Q. What deflected it in its dip from a dip of thirty-four degrees for a distance as shown upon that section—what is that distance from where you have it in the side line raise, down to where it is deflected in its downward course suddenly?

A. Three hundred and twenty feet.

Mr. Lindley:

Q. The question presupposes that the movement is in the direction of that dip line?

The Witness: I have not answered it yet, Judge.

Mr. Lindley: All right, go ahead.

Mr. Dickson:

Q. What movement do you refer to Mr. Lindley? The Faulting movement?

Mr. Lindley: Yes, sir.

Mr. Dickson: I am referring to the downward course of the Siebert fault, as we find it to day.

Mr. Lindley: Shown in that direction. But your question assumed a change in the form of the dip, as if the movement had proceeded in that line.

Mr. Dickson: No, I haven't the matter of the movement in mind at all.

Mr. Lindley: I will let the witness answer the question. Pardon

the interruption. Go ahead if you can and answer the question; I do not object.

The Witness: You want me to answer that question, Judge Dickson?

Mr. Dickson: I thought that you had answered it.

Mr. Lindley: No he reminded me that he had not answered it.

The Witness: Will you read the question please?

905 (The Reporter read the last question and answer.)

The Witness: He asked me two questions there at once.

Mr. Dickson:

Q. Does the Siebert fault as it is found in the ground to day have such a sudden deflection wherever you found it along any certain region from a dip of thirty or forty to practically a horizontal course?

A. Neither of these—no portion of the line there shown on Exhibit Searls-4 represents the dip of the Siebert Fault.

Q. Well, we will go to the model. I though- we could get it from that section. As I understand you have the Siebert Fault disclosed in the 488 Raise, to which I now point?

A. We have.

Q. And what is its angle of dip as disclosed in that Raise?

A. About thirty-five degrees.

Q. And approximately the same in the 2-A, 4-A, 5-A, 6-A and 7-A Raises?

A. Slightly flatter there. None of those raises go up on the dip exactly.

Q. Well, what is the true dip?

A. I remember that the true dip in 461 Raise is twenty-nine degrees, and it is approximately that in the others.

Q. Well, now, if it had followed down either in the 4-A Raise on the dip that it had in that raise. or in any of the A series of raises,—it would have been disclosed in the workings below would it not?

A. Yes, sir.

Q. So that it must have flattened very abruptly, or quite a sudden deflection in the angle of the dip or course downward on the Siebert Fault?

906 A. It has flattened that way, and to know that it has flattened one does not have to accept the negative evidence of its being found in the lower workings, because he has positive evidence of its being found in the direction which shows that it certainly has flattened off.

Q. Where?

A. In the 500 Tonopah Mining Cross cut.

Q. Where you have it at the point you have now pointed to in the 500 Tonopah Mining Company's workings, have you it disclosed there on its course, strike or on its dip?

A. It is almost horizontal there Judge,—in a portion of the *our*kings there, it is both on its strike and dip.

Q. If it is almost horizontal, from that one observation alone, it would be disclosed on its strike rather than on its dip?

A. I guess all directions on it—it be- horizontal would be on its strike.

Q. But if from this one observation alone you find that it was in a horizontal position would not the natural inference be that it was there developed on its strike and not on its downward course?

A. I do not see how you can differentiate between the strike and dip of a flat plane?

Q. How do you know that it is flat?

A. You can see it coming in the roof of the drift about fifty-seven feet I think it is—the roof of the cross cut about fifty-seven feet from the drift, and there flattening out so that it occurs in the cross cut for a considerable distance in a portion of that place it is actually flat.

Q. Do you know from that one observation alone where you find it flat, you are not following it on its downward course, for
907 it has no downward course?

A. I don't know which it would be.

Q. You don't know which it would be?

A. The general appearance of the gouge where it shows in that cross cut, is of having a strike across that cross cut.

Q. Do I understand Mr. Searls, that you are unable to say whether or not that Siebert Fault is disclosed in this Tonopah Mining Company's workings,—as it is disclosed, you have it disclosed on its strike or course, as distinguished from its dip or downward course?

A. I am unable to say; it is so flat there that you can call it strike or——

Q. Let us assume that its flat dip—you would have a perfectly flat dip, and you would have it disclosed in the 400 level of the West End, about seventy or eighty feet northwesterly from the McQuillan shaft, haven't you?

A. Yes.

Q. Now take it from that point and give me what would be the dip necessary to carry it from there to where you find it in the 500 Tonopah Mine workings, where in the last place it is found on its dip—what would be the angle of the depression?

A. That would be a depression almost in a line that would depart very little from the strike of the fault; it would not be anything like its dip.

Q. Well, as I understand you, you don't know where it is revealed in the Tonopah Mining Company's workings,—it is disclosed on its strike or on its dip?

A. No, it comes into the roof of the cross cut as we go to the west.

908 Q. So that from rock, you think that you have it there on its dip?

A. It is on its dip. You come from a point under it and intersect it, but it is so flat at that particular point where it is intersected, that you cannot take a careful observation of its strike or dip.

Q. You have it disclosed in another place in the 500 T. M. workings?

A. No.

Q. That is another fault?

A. Yes.

Q. What is the strike of the Siebert Fault from where you have it in the 488 Raise to where you have it just a little above the bottom of the Raise in station 1220-A?

A. About north 52 west.

Q. Does that in your judgment represent the strike of this fissure between those two points?

A. Yes, between those two points.

Q. Now, taking that to represent the strike between those two points, and assuming that where you have it in the 500 Tonopah Mining workings, to be there disclosed on its dip, what would be the angle of dip necessary to carry it over from its strike between the 488 Raise, and the raise in station 1220-A?

A. The dip should be noted at right angles to the strike.

Q. Yes, the dip should be noted at right angles to the strike.

A. I could figure it out more carefully than to measure it on this model.

Q. Very well.

A. An angle whose tangent is fifteen over 160; about six degrees.

Q. Six degrees?

A. Yes.

909 Q. Now, Mr. Searls, am I to understand that notwithstanding the places where you have observed the Siebert Fault in the 488 Raise, in this 621 Raise, and in the 2-A, 4-A, 5-A, 6-A and 7-A Raises, and where you have it in the raise nearest the station 1220-A, and again in a cross cut running out from that about midway to its height, and again in 466 Raise near its top, and again in the A-Raise, on Defendant's Exhibit, and the 200-A raise on the Plaintiff's—and again down in the 500 T. M. Tonopah Mining Company's workings,—and with all your observations as to the course or strike of the Siebert Fault, and its dip in the various places as you have observed it, that you are unable to say whether where encountered in this 500 T. M. workings—you are unable to say whether it is there encountered on its strike or on its dip?

A. I think that your question implies a difficulty which does not exist. There is no doubt about coming out from the vein, out along this cross cut and intersecting the Siebert Fault, there from a point underneath it, so that only in that sense it intersects it as it comes down, because they come from underneath it and intersect it; but the fault at that particular place is so flat, that it would become a matter of considerable uncertainty to place a stick across that drift and take the strike of the fault at that place; there you could not see, at what angle for instance, the cross cut coming out to that point made with the true local dip of the fault at that point.

Q. So I am correct in my understanding, that notwithstanding all of the place at which you have observed it, and have observed its course or strike or its dip, that you are unable to say whether

910 you encountered it on its strike or it- dip in the 500 T. M.

A. The answer that I have just made is correct.

Q. Well, are you unable to say,—yes, or no?

A. I am able to say that I encountered it, yes—I am able to say

that I encountered it from underneath and, therefore, upon its downward course, but I am not able to say at what angle the line along which I walked to encounter it make- with the local dip of the vein at that point.

Q. Do you think that you encountered it there on its local dip; that that is the local dip where you encounter it there?

A. Yes.

Q. And to carry it from the point 70 or 80 feet west of the McQuillan shaft in the 300 level, over to this place where you now say that you believe that you encounter the Siebert Fault, would require an angle of depression of six degrees only?

A. Yes. The angle of depression between the points you mention, which is the point marked on Plaintiff's Exhibit-1 as 1335-A and the point in the Tonopah Mining where the fault is intersected, is not six degrees. It would be less than six degrees.

Q. Well, what would it be?

A. It would be not over two degrees.

Q. Not over two degrees—almost horizontal. What deflected it in its downward course from forty degrees in the 488 Raise and twenty-seven degrees in the 4-A and 5-A Raises, to a dip of two degrees from the horizontal?

A. I don't know that anything deflected it at that point; it is a crooked fault, and the reason for the curvature of the fault, both on the strike and dip is something that I do not know all about; I rather suppose that the harder rocks underneath has something to do with it.

911 Q. The harder rocks underneath where?

A. The West End rhyolite and foot wall rock generally, trachyte, glassy trachyte.

Q. Is that any harder there than the contact at the crest of the fold, where you find the Siebert Fault tangent to the crest? The same rock?

A. The same rock, in a similar way, the Siebert Fault out in this country where it flattens is tangent to that body of harder rock revealed as it — at the top of the fold.

Q. Going to your Searls-4, you have the Siebert Fault pursuing its course downward from the place where it is cut in the sideline raise, to the point just now marked in lead pencil, X-1, on Searls-4 on an angle of thirty-four degrees?

A. Yes.

Q. It is followed down there from the 461 raise down to "X-1" practically on the crest of the roll and particularly further down the northerly slope?

A. Yes.

Q. Now, was it suddenly deflected from that course of thirty-seven to two degrees?

A. It there changes it- course of direction, the downward course as shown on this section. It changes its angle of dip in the downward course.

Q. It changes the dip in the downward course?

A. Yes, sir.

Q. Now, have you observed anything in the ground in that there, or easterly or westerly, or northerly or southerly, which would account for such a sudden deflection of the downward course of that strong fissure?

A. Here are hard rocks underlying the vein in the foot wall, and here is Midway andesite with the contact, which was probably in about that position before faulting took place, along which
912 the fault probably followed, and has followed for a large portion of its area.

Q. We have the hard rock on the contact vein from 461 down to X-1, and that did not deflect it at all apparently?

A. There is no West End rhyolite under 461 Raise, until you get thirty-five feet below. The contact is well on the foot wall side of the vein.

Q. From there on north, from the point where it is suddenly deflected in its downward course, at the point of deflection, it has not come in contact with the rhyolite at that point of deflection?

A. It does not follow that contact, but it does very nearly conform,—and it is my belief that it does conform with the contact, between the Midway andesite and the Mizpah trachyte, because this fault exists a long distance to the west on that contact, and for a large portion of its course above and to the west of that is on the contact; that contact along there is a plane of easy motion, to which it may have accom-odated itself.

Q. But taking the whole distance from the top of the 461 Raise down to the point X-1, you have Mizpah trachyte which did not deflect the Siebert Fault in its downward course. What did deflect it when it got down to X-1; is there anything observable in the ground that you can say would account for such a deflection in the downward course of so strong a fissure?

A. That includes as I said before the other component of motion of the Siebert Fault—the relation of the motion along that fault to whatever particular initial planes of weakness, there may have been in the ground, and in considering that relation we must consider not only the relations either of the strike or dip of the vein,
913 but also in right angles to the plane of the section, and a plane parallel more nearly with the dip of the fault. In other words, this explains only a portion of such a relation.

Q. See if we cannot get at it in another way. Where you have the Siebert Fault disclosed at various places you have mentioned, for four or five hundred feet westerly of the east end of the West End claim, as I understand, you, where that Siebert Fault ceased to be practically tangent to the hanging wall of the north dipping limb of your vein, it is suddenly deflected from its course, northward, all along that three or four hundred feet. Is that true?

A. Flattens out in a line approximately——

Q. A sudden deflection?

A. Yes, rather sudden.

Q. Very sudden considering its dip above and the flatness with which it must have gone off from there almost to where we find it in these raises; it must have been a very abrupt deflection?

A. If you will look all along the model so as to get the true relation of the dip of the fault to the northeast, that deflection will be very much in evidence, very much less marked than as first appears in the section.

Q. Well, whether six or nine or ten degrees—is in your judgment, and the fact that you have not found it in the *ow*rkings below, in that vicinity, there has been a sudden deflection of the downward course of that vein shortly below the bottom of these raises in which it is disclosed?

A. It is not a vein, but I know that there has been a deflection or flattening of the dip.

Q. I used the word vein inadvertently. A sudden deflection in the downward course of the Siebert Fault?

914 A. There is a flattening of the dip along that axis, yes. I do not know——

Q. Now have you observed anything in the groun*f* that would account for such a sudden deflection in the downward course of so strong a fissure?

A. All of the relations which I have observed in the ground are portrayed upon the model and upon the sections.

Q. Well, tell the court, what, in this region, this four or five hundred feet from the east end line of the West End claim westerly where there is the sudden deflection of the downward course of the Siebert Fault,—what you have observed there that would afford any explanation of that deflection?

A. It does not occur to me that it is a matter that needs any particular accounting for. With a trough shaped fault you have a displacement in the direction of the curvature of the fault.

Q. That is like fissure veins, or fissures that have become veins, will follow the general law of following the path of least resistance?

A. With the reservation that we made when you asked me that question,—yes?

Q. What is there where we have the sudden deflection according to your judgment, in the downward course of that fault, the Siebert Fault, that made the course which it had been following when you had it in the tops of these raises, down to the bottom and below, which made that path from there on down a harder one to follow and a more difficult one to get through, than the path which it had followed from the top of the raises down to the point where it makes the sudden deflection in its downward course?

915 A. I think that is very evident upon this section. The fault if it had continued down in the plane of this section with the downward direction which it had in the plane of this section, would have had to cut through not only the hard massive quartz vein which is found at that point but also the hard west end rhyolite which underlies it.

Q. But it was deflected before it reached the hard vein, and skidded along the top of the vein as tangent to it, and then when it ceased to be tangent to it it was deflected in its downward course before reaching the hard vein or hard rock, wasn't it?

A. It certainly was. It does not throughout the more northerly

part of that section coincide with the hanging wall of the vein. That is a point of observation.

Q. Several feet beyond the point of deflection. Isn't it a fact Mr. Searls that one of the main reasons or fact, going to make up your opinion, or leading you to the conclusion that there is any such flattening of the Siebert Fault in its downward course, is the fact that you do not encounter it in the workings beneath, where you should encountered it and would have encountered it if it had not changed its downward course?

A. I think that if the West End company had shot that round of holes, in 533-A, it would not need any negative evidence.

Q. Well, we will come to that later on.

The Court: Where is 533-A?

A. We are having 533-A and 537 continued upward with the exception of coming into the Siebert Fault above the hanging wall of the vein, as there disclosed now.

Mr. Dickson: And the workings at the present status, is it not one of the main factors in leading you to the conclusion that the Siebert Fault has so flattened in its downward course, is because you
916 do not find it where you should have and where you would have found it had it continued downward on the course where you had observed it?

A. That is a large factor, yes.

Q. The Siebert Fault is a strong fault, a large fissure?

A. Yes.

Q. Extending for a long distance, and in that distance longitudinal, and in your judgment will extend for a long distance downward?

A. I think there is no question about it.

Q. Now, has there been movement upon the fissure—not the Siebert Fault fissure, but upon the fissure in and along which the ore bodies of the north dipping limb of your anticlinal fold are found?

A. Has there been movement?

Q. On the walls of that fissure?

A. Do you mean prior or subsequent to the mineralization of the vein?

Q. Well, first generally. Has there been movement?

A. There has been, yes.

Q. Are you able to say, that while there has been movement of the walls of that fissure, that there has been no movement thereon since the vein was formed?

917 A. I am able to say that since, if you mean since the vein was so formed, since its mineralization was completed?

Q. That is what I mean.

A. Yes sir.

Q. Why?

A. The vein is mineralized with quartz in large quantities.

Q. Yes?

A. And the quartz accompanies the pre-mineral fissure of the vein, follows it closely.

Q. Yes?

A. And the pre-mineral fissure of the vein is frequently observable in that quartz as the silicified gouge, thoroughly replaced gouge, and the fact that no motion has occurred along that gouge and fissure since the formation of the vein is evidenced by the fact that there is no crushing of the quartz in the immediate proximity of the fissure.

Q. Suppose there had been movement on the fissure, the vein fissure in and along which the ores on the northerly limb of this anticlinal fold lay; after the deposition of the mineral, after the veinification had been completed, there had been movement along the walls of that fissure; would it not grind and crush to some extent the ore lying along the hanging wall of the fissure?

A. I think it would, and since this fissure, pre-mineral fissure occurs in the vein, in the middle of the vein and not on the hanging wall of the vein, the fact that such movement has not occurred along that primary fissure is attested by the fact that no such crushing is found along the walls of that pre-mineral fissure.

Q. Fissure veins, after the mineralization has been completed, are subject frequently—give evidences of having been subjected to subsequent movement?

918 A. Yes sir.

Q. That is often the case?

A. During mineralization, and subsequent to mineralization at times.

Q. Apart from any subsequent mineralization, when the mineralization was completed, fissure veins in many instances, demonstrated from facts observable, that there has been movement along the walls of that fissure?

A. Yes sir.

Q. Subsequent movement?

A. Yes sir.

Q. And such subsequent movement would have the effect of disintegrating or crushing to a greater or less the rock underlying the moving hanging wall, if it was the hanging wall that moved, wouldn't it?

A. That is so, and the absence of that within the vein proper on the north limb of the anticline is my reason for saying that no such subsequent movement occurred here.

Q. The absence of what?

A. Of the phenomena that you just referred to.

Q. You find the ore crushed in these regions?

A. Yes sir, under the Siebert fault.

Q. Under what you are pleased to call the Siebert fault?

A. That is not ore, however.

Q. What?

A. That is not ore; stringers of quartz.

Q. If you have any objection to the use of the word ore, we will eliminate that. The stringers of quartz there are found crushed in places, in those raises?

A. They are found sheared off and cut off by the gouge.

919 Q. They are found—the quartz has been crushed up and

broken to some extent, at least, and that must have been due to some movement, and you say it was due to the movement along the plane of the Siebert fault fissure?

A. Yes sir.

Q. And it could not have been, that crushing or breaking could not be referable to any possible movement that could have taken place on the hanging—along the hanging wall, the hanging wall as relative to the foot wall of the vein?

A. Well, if it had, I would expect it to follow the hanging wall of the vein itself and go over in 569, 571 and 573 raises, and not shoot off into the country rock above the vein.

Q. But you find it going up on the same plane of the dip, the same angle of dip as the hanging wall below, do you not?

A. Well, it shows——

Q. The raises go up on the same angle of dip that your vein below occupies?

A. Yes, except that the hanging wall partakes of the flattening which you called my attention to on the Section Searls 4.

Q. How is that?

Mr. Lindley: The raise don't go up on the dip of the fault, Mr. Dickson.

Mr. Dickson: They go up on the dip of the vein, though. I do not care anything about this fault at present.

Mr. Lindley: Well, I know you do not.

Mr. Dickson: For these questions, I mean.

920 The Court: We will take a recess now. The case is continued for fifteen minutes.

(Recess of fifteen minutes taken).

The Court: Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

Mr. Dickson: Just read the question—Mr. Searls, pay attention to the question and answer that you have given. Read the question and answer to the witness.

(The reporter read the last question and answer.)

Mr. Dickson:

(Q.) What flattening do you refer to, the flattening of the Siebert fault?

A. No sir. I say that the raises go up in a general southerly rise—a general rise to the south, in the same direction as the hanging wall of the vein below, and to the north of that point, except that the hanging wall of the vein to the north partakes of a flattening of the dip, such as that to which you called my attention in the case of the Siebert fault.

Q. Do you not believe, Mr. Searls, from your observations in this district, surface observations, as well as underground observations, that since this vein that is here in controversy, or these veins, as we contend, were completely formed, mineralization completed, that this immediate section of the country has been subjected to strong, intensive earth disturbances?

A. It certainly has.

Q. Certainly has. Very intense, you should judge?

A. I should judge they had, except that I do not know of any large faults within the mine under discussion.

921 Q. I am not speaking of faults, but the earth's crust where these mines are situated and in proximinty thereto and considerable distances therefrom. In you- judgment, the crust of the earth there has been, since the completion of the mineralization of this vein, subjected to intense disturbances?

A. I think it has been subjected to disturbances, and the reason for so thinking, of course, is the occurence of faults within the mine, and the size and number of the faults are, in a rough way, indicative of the amount of stress to which that particular block has been subjected.

Q. Yes, and in addition to that, if you are correct in your conclusion that the westerly terminus of this vein, or terminal edge, as you refer to it, was once an exposed surface, if it had been eroded away, laying bare the top of that terminal edge——

A. Yes sir.

Q. Since that time, since that erosion took place, there must have been some great volcanic eruption in the close proximity to that terminal edge in order to deposit what you call the Fraction dacite breccia, must there not?

A. That depends upon what you mean by a close proximity?

Q. I do not mean to confine you to that edge, but in close proximity, within a mile or so?

A. I would not say that.

Q. Well, then, ten miles?

A. Well, that is probable.

Q. Yes, that is probable. Don't you think that that subsequent volcanic section, intense as it must have been to have covered this country the depth it has with its outpouring from its mouth of lavæ and other material, must have intensely disturbed the
922 country in which this mine is situated, shaken it from end to end and top to bottom?

A. It seemed to me that the disturbance to which any block of ground is subjected from *distance* sources is indicated by the amount of faulting that is found within the block.

Q. Well, that is not entirely a satisfactory answer to my question; not satisfactory to me, if it be to you.

A. Will you read the question again?

Q. No, I will put it again: the volcano out of which was vomited what you call the Fraction dacite breccia occurred after this vein was formed?

A. Yes sir.

Q. And the veinification completed, mineralization completed?

A. It certainly did.

Q. Certainly did. Now, whether that volcano was within a mile or ten miles of what is now marked, located at the West End mining claim, do you not think that its effect must have been to have

disturbed intensely the vein found in the Mizpah and shaken it from top to bottom and end to end?

A. I confess that I would be unwilling to attribute any part of the disturbances found in this vein to the particular volcano from which the particular Fraction dacite breccia came. I suppose there is some connection between the volcanic activities and the faulting in this region.

Q. You say that it is probabe that the volcano is at least within ten miles of this vein?

923 A. I should think that was probable, I am not certain.

Q. If, then, within ten miles of it, don't you think that the necessary result of that volcanic force or eruption must have been to have shaken this vein with tremors from *to* t-p bottom and end to end?

A. I am probably not quite clear as to what you mean by the extent of shakings; do you mean it produced earthquakes?

Q. Earth tremors, of the region occupied by this vein; violent earth tremors.

A. I suppose locally that there were earthquakes in this region at that time.

Q. Well, don't you think there would be earthquakes, and earth tremors of great violence resulting from that volcanic eruption in the region in which this vein is now found?

A. I think that is a matter of a good deal of speculation.

Q. You think that you might have a volcano such as that within ten miles of where that vein is situated, and have no earthquake that would shake this ground in which the vein is found?

A. To what extent do you mean shake, you mean dislocate, and break the ground?

Q. I do not care whether it breaks it or not, there would be great violent earth tremors, wouldn't there?

A. I suppose there would be earthquakes.

Q. And do you think that that violent disturbance could have taken place along the region in which this vein is now found without any movement upon the walls of that vein?

924 A. I think that any earthquakes that would be attributable to a volcano ten miles away would not affect the vein in the least.

Q. You think it would not affect it at all?

A. No, I do not *not* think it would affect it.

Q. That it would be quite natural, in your judgment, to suppose that we could have had a volcanic eruption like that, this way, or this way, and it would not set up earth shocks that would cause any movement upon the walls, either wall of this vein?

A. I am familiar with the site of the shock of one very violent earthquake, and know that it does not affect the rocks, the hard rocks a hundred feet from it.

Q. But where you already have an opening in the rock, fissure in the rocks, and you have violent earthquake shocks, extending through that fissured zone, wouldn't you expect that there would

be movement upon all the fissures, more or less, produced thereby?

A. I think, Judge, you have cause and effect mixed up there.

Q. That may be.

A. I think that the faults and dislocations which have occurred in this block of ground would set up earthquakes but I do not think earthquakes that were set up ten miles away would cause dislocations or fractures of the vein.

Q. I am not confining you to faults or dislocations particularly? Do you not think that the necessary result of such a volcanic force energy as that would be to violently disturb the section of the ground in which this vein is found? I understand you to say yes to that.

925 A. I do not say yes to that.

Q. You say no to that?

A. I think it would produce tremors and earthquakes, perhaps.

Q. But nothing of sufficient violence to move any of these fissures, one wall upon the other, to any degree whatever?

A. I think that would be very unlikely.

Q. Very unlikely?

A. Yes sir.

Q. Well, we will go over to Goldfield for a few minutes, if you will put up that section. What is its number?

A. Searls No. 1.

Q. Is the vein that you there have that you have delineated in part upon Searls 1, a fissure vein, or a contact vein, or what?

A. It is a vein that as far as its mechanics of formation goes, is very similar to this vein here.

Q. Is it a fissure vein, or what?

A. It is a fissure vein to the extent that the vein minerals follow a fissure.

Q. Has it, in your judgment, a top, a terminal edge, apex?

A. Yes sir.

Q. Is this portion of the sketch to which I now point, running from X down—put Z here, for me: from the line of work represented here from X to Z, are you following there on the dip of your vein from an apex?

A. That section is not parellel to the true dip of the vein.

Q. Well, is it following down either in the true dip of the vein, or angling across it, I do not care about that?

926 A. Yes sir, it is following down it.

Q. Departing somewhat from the true dip?

A. Yes sir.

Q. And just beyond Z, or between Z and B, you have a picture representing an anticlinal fold?

A. Yes sir.

Q. In the downward course of that vein?

A. Yes sir. That exists in the ground.

Q. If we were to cut off, had eroded away all of the vein in its downward course from X to Z, would your opinion be that then that vein had not top or apex?

A. It would be my opinion that no top or apex was exhibited in that section.

Q. How is that?

A. It would be my opinion that no top or apex was exhibited in that section.

Q. All right. We will suppose that we had that condition from end to end of the mine. We will suppose that it was a thousand or five thousand feet long, as you went down, you have the evidences as you have on this section. You have now on the section which you claim to recognize as the top or apex of your vein, and you are following on its dip; from its apex down to Z. Now, we will suppose that condition prevails throughout the whole length of the mine, so far as developed, and then assume that from X to Z, not only on this section but every section that could be taken along the strike of the vein had been eroded away, leaving in the exhibit what is shown here from Z up to the point B, and thence on down to Y,
927 would it be your judgment that that vein had no top or apex?

Mr. Lindley: One moment: that is a question of law.

Mr. Dickson: I have a right to his conception of that.

Mr. Lindley: As to whether a man can start and follow up on a vein depends altogether upon whether there is a local curve on the vein, or a local feature. That is a question of law.

Mr. Dickson: No doubt about that. But when witnesses are brought here to tell us where the top is, or where it is not, of course, it is legitimate to find out in cross-examination what their conception of a top is.

Mr. Lindley: I never asked the gentleman where the top or apex of this ledge was. I will allow you all the latitude you want, only I simply want to protest that this is not legitimate examination, that is all. You can go ahead, if you see fit.

Mr. Dickson: I think the question is proper, if the Court please. Just read the question.

The Court:

(Q.) You remember the question, don't you?

A. Yes sir. I will explain that the approximate scale of this diagram will be about 250 feet to the inch, and with that explanation, I should say that under the conditions that you have specified, that there would be no top or apex to that vein. No apex to that vein. I remove the word top. No apex to the vein.

Mr. Dickson:

(Q.) Do you make any distinction between the word top and apex?

A. Yes sir.

Q. What?

A. I understand by the word apex the top edge.

928 Q. And by the word top, you understand what?

A. I think there could be a top of something without having a top edge.

Q. Suppose you had an anticlinal fold, Mr. Searls, at rock strata,

we will say, that the flanks or sides of the anticline stood at an angle of 45 or 50 degrees, and you were asked what, in your opinion, was the top of that anticlinal fold; what would your answer be?

Mr. Lindley: That is obvious.
Mr. Dickson: Well, I want the witness' answer.

A. The crest of the anticlinal fold——
Q. Would be the top of the fold?
A. Yes, the point where the dip changes.
Q. But if there were a vein following up the two sides of such anticlinal fold and uniting along the crest of the fold——

Mr. Lindley: That is two veins.

Mr. Dickson:

(Q.) Two veins. Well, I put it that way, first, two veins. Suppose there were two veins, one ascending along the—assume that the strike of this anticlinal fold was easterly and westerly—and that on the north dipping limb of the fold there was a vein extending throughout its entire length, and following from the dip upward to the crest of the fold, and on the southerly dip of the southerly limb that we had another vein following up that limb of a crest and there uniting in ore, continuous ore over the crest of the fold. If I understand you, you would say that the top of the anticlinal fold—the crest of the anticlinal fold was the top thereof; your opinion would be that the crest of the anticlinal fold would not there be the
929 top of either of the veins?

A. There are so many suppositions in that question, which I take exception to, that I do not think the question is capable of being answered by me. For instance I think if two veins came up the legs of that anticline and united in continuous ore, that you would very likely have one vein.

Q. Well, would it have any top, in your conception of the word top?

A. It might have a top in this way: that most anticlinal folds in the earth's crust are not horizontal, their axes are not horizontal. They plunge in one direction or the other. And if I were coming up the limb of such an anticline and wanted to reach the highest point in the vein, I would follow up the axis of that anticlinal fold upward along it to reach the higher points.

Q. But in order to ascertain where the top of the anticlinal fold itself was, you would not do that? You would take the crest of the fold?

A. Yes, I would follow up along the anticlinal fold, if its plunged, to find the highest point.

Q. To find where the top of the anticlinal fold was?

A. Yes.

Q. Well, were you mistaken when you answered the question a little while back that if it had an anticlinal fold and the sides of which were sloping at an angle of 45 or 50 degrees, you were asked where the top of that fold was, that you said at the crest of it?

A. I understood the way you hold your hands, that you referred to a horizontal anticline; an anticline whose axis was horizontal.

930 Q. If the crest of the anticline then was not absolutely horizontal—if it was dipping or declining—its course being easterly and westerly,—it was declining towards the east at any appreciable degree from horizontality, if you were asked where the top of that anticlinal fold was, you would not say the crest of it?

A. No, it seems to me obvious that if you were asked where the top of the fold was, if you would follow up on it you would get to the top when you could go upward no further.

Q. Will you hand me that specimen of fraction dacite breccia please? What is its number?

A. S-9.

Q. You understand now where that came from?

A. Yes, I do.

Q. About ten feet or so westerly of what you call the terminal edge of the vein?

A. Yes.

Q. Out in the Fraction dacite breccia?

A. Yes. I would explain here that a point ten feet out in this direction in the 300 West End where it enters the Fraction dacite breccia, would be only a short distance above the old surface underlying the Fraction dacite breccia, for the reason that the old surface lies at a very sharp angle to the direction of that drift.

Q. Nevertheless you have in the present surface as you go out into that, the Fraction dacite breccia?

A. Yes.

Q. How steep it is out here two feet or five, of course you don't know?

A. I have a very good means of making an estimate.

Q. Well, how deep do you think it is out ten feet from the terminal edge of that level?

A. About two feet.

931 Q. Have you taken any means to determine it?

A. Yes, the small block model.

Q. Have you put down any workings to determine its depth, ten feet out?

A. Not at that particular point.

Q. That is the point I am speaking about.

A. In the whole development of this surface, as exhibited on Plaintiff's Exhibit No. 4, shows the major slope of the old surface buried by the Fraction dacite breccia.

Q. If it is buried by the Fraction dacite breccia that may be some indication of what the old original slope was, but it would be an imperfect indication of what the depth of the breccia was, wouldn't it, ten feet away from the terminal edge?

A. Not very imperfect if you consider the course of the 300 drift at this point, where it goes out into the Fraction Dacite breccia. It is obvious that at a point ten feet from the apex of the vein the old surface would be a short distance below the floor of the drift.

Q. Can we safely assume that the present topography of the surface of the Fraction dacite breccia is exactly conformable to the old surface over which it flowed?

A. I do not think you mean what your question said.

(Question read.)

Q. Is this intended to represent the top of the Fraction dacite breccia?

A. No, sir.

Q. What is it intended to represent?

A. It is intended to represent the top of the surface covered by the Fraction dacite breccia.

Q. Well, the bottom then or base of the Fraction dacite breccia would be conformable to this old surface. I can understand that.

A. Yes.

932 Q. But would the top of the Fraction dacite breccia be also necessariiy conformable to the old surface?

Mr. Lindley: That is the present surface?

Mr. Dickson: No, the old surface, before the outflow of the Fraction dacite breccia.

A. You can go out in the west end of the claim, by the hospital there, and see what the top of the Fraction dacite breccia looks like.

Q. Suppose that we have for ten feet or twenty feet west of what you call your terminal edge, on the old exposed surface,—suppose there had been a gulley down there twenty feet deep, subsequently when the Fraction dacite breccia flowed out over that country it would fill that gulley, wouldn't it?

A. Yes.

Q. And the depth of the Fraction dacite breccia ten feet out westerly from the westerly terminal edge of this would depend upon just what the old surface was, whether it was even in its slope, uneven in its slope, rolling or what-not, wouldn't it?

A. Yes, but this model represents it very closely in a general way, the slope of that old surface.

Q. How do you know the slope of that old surface?

A. It has been explained.

Q. This is the top of what?

A. The top of the Mizpah trachyte surface in the foot wall of the vein.

Q. It is impossible to determine it. There has been no attempt to determine it, whether it was even and gradual in its slope as represented there or not?

A. It is fairly well determined by the exposures in the ground, as it was pointed out in the explanation of this model.

Q. Nobody can see it?

933 A. See a great many points on it.

Q. Cannot see it anywhere west of the terminal edge of what you call the vein, can you?

A. Yes, sir.

Q. Is the old surface still exposed?

A. Yes.

Q. Uncovered by any of the rock here represented?

A. Yes.

Q. And uncovered, not covered at all, by any of the Fraction dacite breccia?

A. You can see it where workings project into the breccia from underneath.

Q. And that would be only local points, the size of the working only?

A. Yes, but there are a number of such points.

Q. And those workings are run out in the Fraction dacite breccia?

A. Yes.

Q. And they do not expose the old surface?

A. Yes, they do where they cut into it.

Q. Where, give us some one place where they expose the old surface?

A. 166 raise,—136 Raise at its top and the 136 intermediates shows the old surface sloping down this way for a considerable distance, and at the top of the 166 raise where the intermediates comes in to the top of the 172, the end of the 195 intermediate, the end of the red paint, on the 300 level and the stope immediately above that point; the tops of several raises from the 400 level, and the end of the 300 and 600 levels.

Q. The places that you are pointing to except one here, are from 100 to 150 feet easterly of this so-called westerly terminal edge, aren't they?

A. No, sir.

934 Q. You have the old surface you say exposed in the 136?

A. Yes.

Q. Is it exposed also in 242?

A. Yes, in 252 it is exposed where it is followed down by the Siebert fault, forms the back of the raise.

Q. Would it at present appear there was a sudden declination there of the old surface?

A. Yes, there is, caused by the faulting of the Siebert Fault.

Q. Now coming — the Searls-9, assuming that the old surface was covered at the place where this sample was taken for a depth not to exceed two feet, as you estimate, I will ask you to explain to the court what you call the old soil that is found in that specimen?

A. A close observation of the entire specimen shows that it is made up of fragments; there is one around there dimly outlined, and here are some in here, a number of small fragments, so that the whole fragment of rock is made up of a large number of small particles obscured by the effect of kaolinization later on.

Q. Point out the old soil in the specimen?

A. The whole thing.

Q. The whole thing is old soil?

A. Yes.

Q. If the old soil was there covered to a depth of even two feet with the Fraction dacite breccia, how do you account for the old soil being embedded in the breccia itself, two feet above the old soil?

A. Would you please read the question?

(Question read.)

A. I evidently did not make myself clear. I include within the term Fraction dacite breccia such old soil as existed on the surface, when the breccia covered it.

935 Q. I know, but I understand you to say that in your judgment that at the point where this sample was taken, the Fraction dacite breccia may have had a depth of two feet over the old soil?

A. Including in the term Fraction dacite breccia the old soil.

Q. Is this Fraction dacite breccia or is it the old soil?

A. I think that it is old soil.

Q. It is not Fraction dacite breccia at all?

A. I include within the term Fraction dacite breccia, the old soil, because they are indistinguishable.

Q. Well, when you said the old soil, it might have been in your judgment at that point buried.

A. I did not say the old soil, I said the old surface.

Q. Don't you include the old soil as a part of the surface?

A. No, I did not.

Q. When you said the old surface you meant the bed rock?

A. Yes.

Q. And the old soil which is found in this, may have lain above the bed rock?

A. That is what I meant, yes.

Q. And it became mixed up with the Fraction dacite breccia, and became a part of it?

A. That is what I meant, fine fragments.

Q. Speaking generally, the Fraction dacite breccia is made up of fragments isn't it?

A. Yes.

Q. Some coarse and some very fine material?

A. Yes.

Q. Some as fine as powder?

A. Yes.

Q. Away long distances above the old surface?

A. Yes, but particularly in the vicinity, immediate vicinity of the old surface you find an abundance of fragments of Mizpah

936 trachyte and float quartz, which indicates that the fragments in that particular portion had an origin in the immediate vicinity and from the rock that immediately underlie that portion of the territory.

Q. And when you have an exhibition or fact observable of a boulder or piece of trachyte included within what you call the Fraction dacite breccia, surrounded by it on all sides, how do you account for its getting there; if the dacite breccia was poured out after that vein had been eroded, how do you account for quartz in that vein, or from that vein, and the trachyte in which the vein is found being now found in the midst of the Fraction dacite breccia and surrounded by it on all sides?

A. Well you find the phenomen- to which you refer, namely the occurrences of fragments of quartz, and of Mizpah trachyte in that portion of the Fraction dacite breccia that immediately overlies the old surface, and that portion of the Fraction dacite breccia is formed by and represents the old detrital, accumulation of the old surface; in addition to that you find occasionally a fragment perhaps of Mizpah trachyte at some distance out from the old surface, at least a good many feet, supposed to be referable in fact much of this material did not fall in the place which it now occupies as ashes, but as a result of mud flows and accumulations of that kind.

Q. But, apart from the mud flow do you not find out in what you call the Fraction dacite breccia, some considerable distance from the terminal edge, not only the vein trachyte, but quartz, or what you believe to be quartz of this vein, ansolutely embedded in the Fraction dacite breccia?

A. I have seen such fragments out to the distance of as much as thirty feet, on this 300 level which would represent a point a
937 few feet, perhaps eight or ten, above the actual bed rock of the old surface and I believe such fragments represent just as this particular fragment of quartz represents the fragments that rolled down there into the old detrital material that covered the surface and the line of demarcation between the detrital material and the material which is more thoroughly of a volcanic nature, and referable to ejectementa; it is not a sharp line or one that you can pick out.

Q. What would be the depth about of the Fraction dacite breccia, thirty feet out from that terminal edge?

A. I don't suppose more than seven or eight feet.

Q. Assuming it to be seven or eight feet how would you account for finding quartz of this vein altogether surrounded by and embedded in the Fraction dacite breccia, which overflowed upon its surface?

A. I would account for it that that portion represents old detrital accumulations on that slope, and that a boulder or fragment of quartz worked down that surface from its former position upon the apex of the vein.

Q. But still it would rest not on the surface, but on the top of the soil?

A. Yes.

Q. And if you had a specimen of it, of either the quartz or of the vein lode trachyte out there, not only overlayed with the breccia, not only had breccia on its side, but underlayed by the breccia, how did that breccia get under it, as it poured out over the country, so as to envelop it?

A. I think that portion of the breccia that underlies it was not poured out, but represents detrital accumulations on that slope before that was poured down.

Q. It was not breccia at all?

938 A. It is breccia all right.

Q. Of course this specimen, I know, thirty feet out there

could not have been held in suspension while the Fraction dacite breccia poured out over it and covered it up as in an envelope?

A. I should say not.

Q. It was not in the position of Mohammed- coffin?

A. No, sir.

Mr. Dickson: If your Honor please I would ask for an adjournment at this time.

The Court: I would like to ask one question.

Q. How do you account for the kaolinization which appears in that particular section?

A. Kaolinization is a process which takes place in rocks by the decay of the felspars which are contained in them. It is a process which is used to—usually referable to weathering action, and I suppose that the kaolinization in this rock represents the decay under the action of the atmosphere of these little fragments that formed it at the time when it was exposed to the atmosphere.

Q. And that would be what, the trachyte or the other?

A. That would be—it consists of fragments of trachyte and quartz in it.

Mr. Dickson: When this was first presented to you Mr. Searls in direct examination, didn't you refer to it as a specimen of Fraction dacite breccia, and not as the old soil?

A. I think that I very likely did, but I have at all times thought of the Fraction dacite breccia, as embracing the old soil which covers the surface and also embracing the mud flows and other pyrocastic accumulations that occur within it; comprehensive terms.

At this time an adjournment was taken until ten o'clock A. M. December 19th, 1914.

939 SATURDAY, December 19th, 1914—10 o'clock a. m.

The Court: The Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

Cross Examination of FRED J. SEARLS, Resumed.

Mr. Dickson:

(Q.) Mr. Searls, will you be good enough before we start the examination to put up Searls 4.

A. (Witness does so.)

Q. The last subject about which you were being interrogated was Searls 9, the breccia?

A. Yes sir.

Q. Just what do you refer to, or what have you in mind when you speak of the Fraction dacite breccia?

A. I have in mind all of that formation which overlies the bed rock of Mizpah trachyte and outcrop or apex of the West End MacNamara vein at its terminal edge in the west end of the West End and MacNamara claims. I include in that a portion of detrital ma-

terial, of old soil which overlay that surface, and various forms of volcanic accumulation, all of them fragmental or pyro-clastic.

Q. Well, the soil that lies above the old bed rock, if there were any there before the outflow of the Fraction dacite breccia, was poured over it, do you include that soil lying between the bed rock and the subsequent flow of the Fraction dacite breccia as being a part also of the Fraction dacite breccia?

A. I do, yes sir. The Fraction dacite breccia, I think is
940 not to be considered as a formation which accumulated in a moment or in a brief space of time. Its accumulation was probably gradual, and I think it would be difficult, or impossible to point out a line or plane which would mark the surface of the old soil or detrital material which overlay the bed rock of Mizpah trachyte and the outcrop of the vein, and the point where the accumulation became entirely that of volcanic ejectementa.

Q. Have you any knowledge of the depth of that old soil that laid over the bed rock at the time of the outflow or outpouring of what you call the Fraction dacite breccia?

A. As I have just stated, I do not think that the top of that old soil is a definite or sharp line. I think that portion of the bottom of the accumulation does represent old soil, as shown by the fact that it is composed largely of fragments of the Mizpah trachyte, and of fragments of quartz float which——

Q. At all events, if I understand you, you include within the term Fraction dacite breccia all of the old soil that lay above the bed rock, no matter what its depth may have been?

A. I do, yes sir.

Q. Now, this Searls 9, we will say, shows evidence of kaolinization?

A. Yes.

Q. And the decay or degradation of the feldspar in it; and that you say would be caused by atmospheric influences, or weather influences?

A. It is caused by atmospheric influences, yes sir.

941 Q. Therefore, that specimen 9 which was referred to by *your*, first, as I understand it, as Fraction dacite breccia, in view of the evidence—it has been broken. In view of the evidence of the dacay of the feldspar caused by weathering atmospheric influences, that must have been exposed there a long time before it was covered with the true Fraction dacite breccia, must it not, in order that that process of kaolinization could have proceeded to the extent that is manifest in that specimen?

A. I think that the time of the accumulation of the old soil is probably comparable to that of the accumulation of the soil upon the surface at the present day.

Q. I am not speaking of the time of the accumulation of the old soil, whatever there may have been there at the time. But this Searls 9, from the evidences of degradation of the feldspar, decay evidence, that must have — exposed to the weathering influences a long time before it was covered by the volcanic ash or outflow, which I have always understood up to this time was what was included and all that

was included within the term or phrase Fraction dacite breccia? That must have been exposed, this Searls 9, before it was covered up by the Fraction dacite breccia proper?

A. In point of years, a long time, yes sir.

Q. This model, the block model—just put one part on. That is Fraction dacite breccia, that block, that portion?

A. Yes sir.

Q. Now, when we lift that Fraction dacite breccia off, do you understand that the surface underlying that westerly of what
942 is shown on this model in red and intended to represent what you call the westerly terminal edge of this vein, is that intended to represent the old surface or the bed rock under the surface?

A. It is intended to represent the bed rock.

Q. Well, how could you get at and determine approximately, even conjecturally what, the shape, contour of the surface of that bed rock was, not knowing the depth of the old soil above it, what it may have been?

A. Well, the——

Q. It is a pure matter of conjecture at best, isn't it?

A. No sir.

Q. Well, how do you get at it?

A. The line at which the detrital material, the old soil or volcanic ejectements comes against the bed rock of the Mizpah trachyte, or against the outcrop or apex of the vein, as the case may be, is not conjectural at all. It is a very sharp, clear line that you can put your hand or pick on. But the top of what was the old detrital accumulation, where it merges with the more purely volcanic accumulation is not a distinct, sharp plane. In every exposure of the old surface, the line at which the bed rock ceases and the fragmental accumulation begins is very sharp.

Q. Where have you the bed rock, the surface of the old bed rock exposed in that portion shown on this model west of the Westerly terminal edge, what places?

943 A. Referring to Plaintiff's Model, Exhibit 2, it is shown in the 136 intermediate.

Q. How far is that easterly of the terminal edge of the vein, so called?

A. About fifty feet; in the 166 and 172 intermediates, where the apex of the vein can be seen projecting into the detrital accumulations, a little way. In the 185 intermediate where the actual surface west of the apex can not be seen because the Fraction dacite breccia, was here brought down by a small fault; in the No. 3 level, the 300 level of the West End at the end of the Red paint on the model, end stope 4, the edge of the vein against the breccia may be seen, and also portions of silicified Mizpah trachyte. In the tops of the various raises here painted yellow in the 500 and 600 western extremities of the West End Company's working.

Q. Some of them easterly and the other westerly of what you call the terminal edge of the vein?

A. Yes. The *The* whole number of the exposures giving quite satisfactorily the position of a slope to the southwest.

Q. The places that you have pointed to would seem to me to be going out on a level in the Fraction dacite breccia, not showing the slope of the old underlying bed rock?

A. The slope—the southwesterly slope is largely seen at points above the vein and east of the exposure of the terminal edge or apex of the vein, and at the point where the vein apices against the breccia, taken in conjunction with those exposures to the east shows the surface to have a southwesterly,——

Q. Oh, no.

A. By putting these exposures on a map and drawing contours through the points exposed, the surface can be arrived at very satisfactorily.

Q. Well, if it is satisfactory to you it is not to me, just at present. Speaking for a moment again of the Siebert Fault as depicted
944 upon Searls 4—have you any opinion as to the direction of the course that opened that fissure, whether it was side pressure, or what, lateral pressure?

A. I know that the line of action of the force was in a direction of about north sixty east, but how——

Q. Fissures are sometimes opened by lateral pressure?

A. Yes.

Q. Do you think that this was so opened?

A. That would be a pretty difficult question to answer. I do not think that I know enough about it to venture an opinion.

Q. Well, do you think that that fissure was opened so that it grew from its top downward, opened from its top downward, or opened from depth upward?

A. I think that all fractures have a point of beginning.

Q. Where do you think that the point of beginning was here, at the top or at the bottom?

A. I don't know judge, but I would venture an opinion that it was somewhere in the axis of the *of the* trough of this trough-shaped fault.

Q. Where have you the fault fissures disclosed, if at all, as represented upon Searls 4, between the points where it is encountered in the sideline raise and the point X which you marked on this exhibit for me yesterday,—at what points intervening have you it exposed?

A. Have it exposed throughout the length of the 461 raise.

Q. Between the top of the 461 Raise and where it is encountered in the side-line raise, it has not been disclosed by any workings?

A. No, except that the 2-A raise a short distance to the west of this section develops it for a distance further up on its dip.

945 Q. How far would that raise, if it were projected onto that map—just show us where it would fall; project it at right angles, of course, to the plane of section.

A. It would fall in the vicinity of the letter "F" in the word "fault" the projection being, however, a distance of more than one hundred feet.

Q. You were speaking yesterday of a raise found almost vertically beneath the 5-A raise?

A. Yes.

Q. You speak of finding quartz in that raise?

A. There is quartz in that raise, yes, sir.

Q. And you said that it stood vertically, the quartz did?

A. One prominent stringer that I happened to recollect most clearly stand- in a vertical position, the others stand in various positions.

Q. Did you make that additional qualification yesterday, or did you say that you simply found there quartz that stood vertically?

A. I made that additional statement.

Q. Maybe, I don't recollect. The rocks, the quartz found between the north dipping and the south dipping limb of your anticline, and beneath this crest of the anticline—much of that stand- in a vertical position does it not, and is along a north and south fissure, cracks or seams?

A. That is not true.

Q. Not at all?

A. There are exposed on the 400 level and on the 500 level a few places where quartz is seen in the West End rhyolite in a nearly vertical position, but the quartz exposed in the 569-571 and the 573 raises followed by those raises in its anticlinal form from a southerly dip over the roll to a northerly dip, practically all lies in the direction of the workings, and is clearly seen banded and having a
946 course and dip in the direction of that working.

Q. Do you wish to be understood as stating the result of your observation to be, that they are not the places where you have quartz in very considerable dimensions lying between the hanging wall of the north dipping and the hanging wall of the south dipping limbs of your anticlinal fold, to a depth of thirty or forty feet from the crest, and the structure of which quartz is vertical in places, others dipping slightly to the east and others dipping slightly to the west, with innumerable or a great many north and south fractures, cracked seams?

A. There are, in the block underneath the crest of this anticline, vertical stringers, the same as there are in the rock above in the hanging and foot wall of this vein everywhere, but the large masses of quartz there do not stand vertically. The structure and banding of the quartz may be seen just as clearly as any place in the mine to have a flat and rolling form, and the vertical cracks which cross it, and which to the casual observer give it the appearance of quartz standing vertically, are post mineral, and have no relation whatever to the direction of the quartz in these raises.

947 Q. What caused the post mineral cracks in that little intervening space? Why do you say they were post-mineral?

A. I say they are post mineral because they very clearly cut the structure of the quartz, which when one picks it off clean, may be seen lying in approximately a horizontal position. And in places dislocates the quartz slightly, as shown by the little faulted segment underneath the west end 400 level on the section G, Searls 4. You asked me two questions there, Judge.

Q. Go ahead.

A. You asked me what caused those post mineral*s* cracks, did you not *not*? Will you read the last question, please?

Q. (The reporter read the question.)

A. The portion of the answer which I have already given refers to the question why do I call them post mineral. As to what caused them, I am not very certain. There are certain of these cracks seen in the 400 level, in the vicinity of the McQuillan shaft, where the Siebert fault is developed, which look as though the Siebert fault, in dragging when the motion occurred, dragged the heavy hanging wall block of ground downward, tore the quartz apart a little.

Q. Dragging down what block of the hanging wall?

A. All of the rock above the Siebert fault. By hanging wall rock, I mean rock above the fault. That as it moved down over the quartz appears to have torn it apart slightly and formed little vertical fissures. I think also, however, that some of the north — south fissures, developed are not different from other small faults in the mine, and possibly have their origin from volcanic disturbances.

948 Q. Then, the result of your observation, is *it* that there is no place between the north dipping and south dipping veins or vein out for a distance of 20 or 30 or 40 feet below the crest of what you call a roll where, if his Honor were to go there, he could observe that that intervening quartz stood structurally from a vertical to a slight easterly and slight westerly dip with north and south fissures running through it, and that that would be generally—the general observation? The general characterization?

A. That is true. The north and south fissures which are there exposed, in very many instances, cutting the quartz so that it appears to a casual observer to stand vertical are post mineral cracks, and they have nothing to do with the direction of the quartz vein there exposed.

Q. But to the non-scientist, the appearance would be that it stood vertical and was traversed by those north and south cracks?

Mr. Lindley: I suppose by that you include the casual observer?

Mr. Dickson: Yes, the intelligent observer.

A. I can answer that best, perhaps, by exhibiting again the photographs, Searls 2 and Searls 3, and stating that in the directions that we run in the following of these, or in the following of the vein in these raises, that the miners were simply told to follow the vein, and they followed it.

Q. What?

A. I say that in directing the work of making these raises, the miners were told to follow the vein and they followed it.

949 Q. How do you know?

A. How do I know? Because the vein is continuously exposed in the drift. For instance, in the 569 raise, we started off from the 537 raise——

Q. I do not think all of that detail is necessary, Mr. Searls.

Mr. Lindley:

(Q.) I understand this is worked out by the West End Miners under your direction?

A. Yes sir; and those were the directions given.

Mr. Dickson: I did not understand that.

The Witness: You asked me what a non-scientific observer would——

Q. Would it require a scientist to discover that this apparent vertical, or practical- vertical dip or structure in the intervening country referred to in previous questions, with its north and south fissures was—that that appearance was misleading?

A. It is not misleading.

Q. That it did not represent the truth to the -ye?

A. It is not misleading.

Q. Read the question.

(The reporter read the question.)

Mr. Dickson:

(Q.) And did not represent the true facts to the eye, the true conditions?

A. It did represent the true facts, and it would not take a scientist to discover that; all that it would require is a broom and some water to wash off the quartz and show which way it was standing.

Q. So that the true explanation of the conditions and
950 appearances as worked out by the scientists, would be likely to be overlooked by the non-scientific, intelligent observer?

A. I did not state that.

Q. Well, isn't that true?

A. I think it is not true.

Q. Well, you said that it would have the appearance that I have suggested to the casual observer. Don't you include in the casual observer a man of ordinary intelligence, good eye sight——

A. A man of good sight and ordinary intelligence examining this quartz carefully would see very clearly that it lies in a flat direction.

Q. This vein that you have denominated to be one vein is not a typical fissure vein, of course? It has been enlarged, or the vein has been enlarged by the replacement of the rock by solutions which probably had their channel of circulation through the fissure, isn't that true?

A. Yes, the enlargement having taken place as shown in the sections D, Searls 4.

Q. To what extent has the process of replacement extended into the foot wall country of the south dipping branch? Give us the maximum? I do not mean up near the crest of the fold, so called, but apart from that?

A. I think that a partial replacement of the west end rhyolite under the south dipping limb of this anticlinal vein may have proceeded to a maximum distance of perhaps 50 feet.

Q. And from that down——

A. There may have been stringers and branch veinlets
951 that extended even farther.

Q. And from that down to a minimum of what?

A. I have never seen any section or exposure of the vein where silicification has not proceeded from the original fissure for a distance of 10 feet at least.

Q. To what extent, maximum extent has the foot wall country of the south dipping limb been replaced to a degree that would make it commercial ore?

A. Commercial ore?

Q. Maximum?

A. I think I have never seen any commercial ore more than 15 or 20 feet under the fissure zone.

Q. And from thence on, as you went into the foot wall country, it would gradually fade out?

A. That is true.

Q. And what is the minimum distance from the fissure in the foot wall country so far as you have observed it, to which it has been converted by replacement into commercial ore?

A. There are, of course, portions of the vein in the fissure itself which is not commercial ore.

Q. I am not speaking of places like that, but where there has been a replacement of the foot wall country that converted the foot wall country into ore of commercial value. What would be the minimum distance from the fissure where you have observed such condition?

A. There are portions of the stope shown on the Section Searls 4, under the Eureka west end line where the fissure lies approximately along the foot wall of the stope, so that it is presumable that commercial ore did not extend below it.

952 Q. Now, are there places where there is commercial ore for a short distance only below the fissure?

A. Yes sir.

Q. And made into commercial ore by replacement?

A. That is true.

Q. How short a distance? The minimum?

A. The minimum would be zero.

Q. What?

A. The minimum would be zero?

Q. I did not hear.

A. The minimum would be zero feet.

Q. That would be where there had been no replacement at all. The foot wall country had not been converted into ore at all by the process of replacement. Now, I want you to give us the minimum distance to which the foot wall country, according to your observation, has been by replacement converted into commercial ore?

A. I think that that distance would vary from nothing all the way to the figures that I gave you before. You object to the zero feet, I will say a half a foot.

Q. Do you find a like replacement of the foot wall country on the hanging limb of this so called anticlinal fold?

A. I do not understand the question.

Mr. Lindley: North dipping, you mean?
Mr. Dickson: North dipping limb?
Mr. Lindley: You said hanging limb.

Mr. Dickson: Well, I should not have said that. Do you find that the foot wall country underlying the hanging wall of the north dipping limb of this fold or roll has been replaced,
953 mineralized by solutions, probably coming through, having their channel, their fissure on the north side?

A. Your questions referring to the south dipping limb, refer to the fissure along which the vein is formed. You now ask me a similar question, referring your question to the hanging wall of the north dipping limb. Do you mean that?

Q. Is the foot wall country, and I mean by the foot wall country, the country immediately beneath the hanging wall of the north dipping limb replaced any at all? Mineralized by the solutions coming through some channel of circulation?

A. Through a large portion of the area of the north dipping limb, the rock immediately under the hanging wall of the north dipping limb would be above the primary fissure.

Q. Would be above what?

A. Would be above the primary fissure. In other words, the primary fissure does not coincide with the hanging wall entirely.

Q. Well, is the foot wall country, the country underlying the hanging wall of the north dipping limb replaced? Has it been replaced by solutions ascending through some channel of circulation?

A. Yes sir.

Q. To what extent has the foot wall on the north dipping limb been so acted upon, maximum and minimum?

954 A. The replacement of the footwall country underneath the vein fissures on the north dipping limb has proceeded for distances that are entirely comparable with those existing in the south dipping limb.

Q. Now, has the work or process of replacement extended into the hanging country above the south dipping limb?

A. The south dipping limb?

Q. Yes.

A. Yes.

Q. To a degree a degree at all comparable to which the foot wall country of that limb has been effected by replacement?

A. To somewhat large degree as shown in this section "Searls-4" the entire West End 600 winze, overlies the main fissure of the vein and has been replaced largely with quartz, so that it now comprises a portion of the vein, and this replacement had extended up into the 712 cross cut, so that portions of that cross cut show a mass of quartz and ore which make it commercial ore, in a commercial part of the vein. The same is true of the same stope in the same section in the vicinity of the Eureka-West End line.

Q. Now, the workings that you refer to in the first portion of

your answer, where you have the 712 cross cut,—that country there lies between the Fraction vein and the main—what is called the main south dipping vein, does it not?

A. It does, yes.

Q. And that cross cut and the country in that vicinity is very much broken and fractured, isn't it, even much more so than the general fracturing found along this vein from end to end?

A. No, I don't think the fracturing as widened by the appearance of quartz stringers in the 712 cross cut is unusual at all; such replacement and fracturing is found in a great many places throughout the mine.

955 Q. Will you point to some other places where you find the hanging wall country replaced, mineralized, as you describe the footwall country as being replaced and mineralized?

A. Yes.

Q. I will withdraw the question. Just strike out the last question. Will you point to the places where the hanging wall country rock has been replaced, mineralized, at points where there has been no fracturing in the hanging wall country, through which the solution could have made out, and probably did make out, if at all?

A. The mineralizing and replacement of the country rock in the hanging wall proceeds through the medium of little fractures and fissures that proceed out into it.

Q. And in the foot wall country that is mineralized in many places where there is no cracks in it at all, isn't it?

A. No.

Q. Where the whole body of the foot wall country has been mineralized—I mean the whole body for a considerable distance, easterly and westerly and downward?

A. That is not true.

Q. What is not true?

A. Your statement.

Q. What part of it is not true. I am not making a statement I am asking a question.

A. I know of no places in the mines here where there are large bodies of mineralized rock in the footwall of the vein, that are not attributeable to the proximity of the fractures or fissures, either of the vein itself or extending out from the vein.

Q. Do you wish to be understood Mr. Searls as stating that the result of your observation is, that the hanging wall country of the south dipping vein has been replaced generally, to an extent

956 comparable to the replacement found in the foot wall of that same vein?

A. I think it is to a greater extent, slightly.

Q. To a greater extent?

A. Yes.

Q. That is true also, I suppose, of the hanging wall limb——

Mr. Lindley: Hanging wall limb, judge?

Mr. Dickson: The north dipping limb.

A. That is true also, but in that portion of the north dipping

limb, where the Siebert fault is tangent to the north dipping limb, the evidences of this replacement, namely, the little veinlets and stringers, which proceed out from the vein has been scored off and carried away so that for those portions of the vein it is not in evidence.

Q. Apart from the territory practically in the immediate vicinity of what is shown upon Searls-4 section of the 712 cross cut, I wish you would point to some workings in which would be found veinlets or seams of any considerable thickness, disclosed?

A. I will point to several such.

Q. Very well.

A. The 429 cross cut——

Q. Shown on the model?

A. Shown on the model, from which the 429-B raise is put up, is full of stringers of quartz.

Q. What dimension what thickness?

A. Up to a foot or two feet in thickness,—and the 429-B raise from that cross cut shows a great many such stringers.

Q. There is only one represented on the cross sut in the model?

A. That is not—the detail of those stringers does not purport to be represented upon this model; it would be impossible for so many of them. The stope portrayed on the section-G which is in the vicinity of the Eureka-West End line, very nearly its entire part overlies the fissure of the vein, and there has been so many
957 stringers of quartz and ore in that which they have been stopeing for commercial ore—the trachyte portion having been sorted out. The entire end of the 400 level, from 461 raise to the west end line of the West End claim.

Q. What end line?

A. The east end line of the West End claim,—are full of stringers of quartz comparable in size and extent to those found in the 712 cross cut. The raises such as the one that goes into 5-A and one not shown on this model—there are two raises shown there, and the 5-A, that are full of quartz stringers, the one in the footwall going from the B—up to the A stope, are probably sixty percent quartz occurring as stringers in the trachyte.

Q. Stringers of what thickness?

A. Up to two or three feet in thickness. The cross cut from the three hundred level of the MacNamara—intermediate cross cut, above the 300 level of the MacNamara, near stope-11, slightly east of it, is a net work of stringers of quartz in the hanging wall of the vein.

Q. Indicated on the Defendant's model at all?

A. No, sir, but the cross cut is full of them.

Q. Any considerable dimensions?

A. Yes, so much so that the rock in the cross cut contains thirty or forty percent quartz.

Q. Do you know why these so-called stringer- are not represented upon the model, in a place os such importance?

Mr. Lindley: That is according to the question of view point; you

must not presume that it is important unless it is in support of a particular theory.

Mr. Dickson: If for that whole distance it is sixty per cent
958 in quartz, it would be a natural assumption that it was important.

A. This model, Defendant's Exhibit-2 does not purport to represent the occur-ences of all of the hanging wall stringers in the mine; it would be impossible to represent them with even approximate accuracy on such a model.

Q. But it does undertake to represent a few of them?

A. It represents some of them?

Q. And only a few of them?

A. Yes.

Q. And were those few represented because they were more prominent than the others not represented?

A. No, sir.

Q. All right. What is the average thickness of this vein, the south dipping limb first?

A. The average thickness.

Q. Yes. Including the replacement to the extent that it has been converted into commercial ore, at all events.

Mr. Lindley: Is that determined by the stope line?

Mr. Dickson: No, it may not have been stoped out to the limits of commercial ore; I do not know.

A. Do you mean by the thickness of the vein, the thickness only of commercial ore bodies in the vein?

Q. They pay ore that could be worked at a profit if you had all the facilities and economic treatment—or put it this way: Including in rock all that you would recognize as ore, whether it would be pay ore or not; I do not mean whether it might be traced the fraction of an ounce, what you would call ore, what would be the average thickness of the south dipping limb of this vein, about?

A. I think that the average thickness would probably,—you mean within the ore body? Of course there are portions of the vein where there are no pay ore, but within the ore body I should say
959 that the average thickness would be in the neighborhood of from fifteen to twenty feet.

Q. And the average thickness in the same sense of the north dipping limb?

A. Within the ore bodies I think that it would be of a very similar thickness of from fifteen to twenty feet.

Q. Has not the vein on the north dipping limb, as you go easterly, so far as commercial values are concerned, has disappeared hasn't it recedes?

A. No, sir.

Q. Does it carry commercial values of any magnitude in the easterly portion?

A. When the West End Company drove the 571 winze for us, they sent part of the rock from that to the mill.

Q. But speaking of this eastern portion of the north dipping limb of the vein, as compared with the westerly portion of it, what would you have to say; it is practically gone, so far as commercial values are concerned?

A. I don't agree with that entirely; I don't think that it has been properly prospected as yet.

Q. Well, there is some reason apparently that the prospecting ceased. Don't you think that was due to the fact that the vein was so impoverished that it would not justify further work upon it?

A. I have already stated that I did not think so; if I owned that ground I would prospect it—I would prospect that part of the vein.

Q. Well, if you owned it—but evidently the owners did not continue their prospecting in it?

A. They did not.

Q. And you understand that work has ceased in there for a
960 long time; it has been a long time since any work was done in there?

A. I don't think so, when I first got to the mine, the cross cut of the West End under this block of ground, was being extended and upon inquiry I was assured that it was being extended for the purpose of finding ore.

Q. Did not find any?

A. What did you say?

Q. Did not find any?

A. I do not think that there was any commercial ore exposed in those raises; I am not sure of the values there.

Q. Well, on the other hand the south dipping limb of your fold, there is found at the easterly end, as big and as strong as at the westerly end, and as big and strong as the north dipping limb is at its westerly end?

A. That is true.

Q. Large rich bodies of ore?

A. Yes.

961 Q. Will you step to Defendant's model, Exhibit A one moment. I wish you would point out to the Court the Butler 700 level, as shown upon Defendant's exhibit A?

A. This is the level to which I now point, bearing such numbers as 710, W. D. 702, 721, 714.

Q. Well, about this?

A. That 7—can't read that number.

Q. What is this one?

A. 719, 714, 714, 709.

Q. That is 717, isn't it?

A. I give it up.

Q. Well, from station or numbers 718, through 714 and 714 again——

A. 708 cross cut.

Q. And the last numbered near the easterly terminus of that line of work is all in the Butler 700 level, isn't it?

A. It is, yes sir.

Q. Is that line of work driven in this vein, the south dipping limb of this vein, what we call the south dipping vein?

A. It is driven in a portion of that vein.

Q. It is driven in the vein, is it not, throughout that distance?

A. I would say that it—all of those workings lay within the vein, although a considerable proportion of the rock exposed in the workings is not quartz, but trachyte.

Q. Showing that it runs along one limb of the vein, or one boundary of the vein, or closely to it?

A. Showing, rather, a similar condition to that portrayed in
962 the nearby 600 winze of the west end on the section Searls 4.

Q. Well, it is driven in the vein, anyway, for that distance?

A. Yes sir.

Q. And do you think that either boundary of the vein is exposed in that line of work, or that it is near the boundary of that line of work?

A. I think it is all within the vein.

Q. That is as much as you desire to say? You do not want to say anything about a boundary?

A. Well, boundaries are indefinite.

Q. What is the course of that portion of the 700 level? I do not want to guess at it.

A. We *have* a protractor here yesterday, but I do not see it. It — about north 62 west.

Q. All right. The course of the vein or that portion of the vein as disclosed in that level between the points given you is not turning to the north so as to form a toe, but swinging away from that to the south, isn't it? It is not swinging to the north so as to make it form a toe in connection with the vein in the north dipping limb?

A. There is—I do not think either in the working or in the vein exposed there there is any *w*ing to the north exhibited.

Q. Swing to the south in its general course; if that was continued on for any distance, it would not come back and form a toe, or what you call a toe with the north dipping line, would it?

A. No sir. If it continued on its strike.

Q. Calling your attention to what has been referred to heretofore as an annex to this model Exhibit A.

963 A. May I make a little further explanation of that last answer before that?

Q. Certainly.

A. The general anticlinal shape of this vein, as it comes westerly, can be seen on either of the models, or upon Section Searls 4, or any of the glass sections in the model, Plaintiff's Exhibit 3.

Mr. Lindley:

(Q.) Did you mean westerly, Mr. Searls?

A. Easterly.

Q. You said westerly.

A. Pardon me. To be very much flatter at its eastern edge than it is at its western edge.

Mr. Dickson:

(Q.) That is observable by all men who look at the model?

A. Yes sir.

Q. Nevertheless, this vein covers that 700 level to which you have referred to as pursuing a course which would make it impossible, of course, it would not deflect it again and turn to the north and form a toe, with the north dipping vein? There it is pursuing a course away from the course of the north dipping limb of the vein, instead of toward it?

A. Yes, we have there in that portion perhaps a little evidence that this anticlinal roll in the vein is dying out as we come to the east, has become flatter and resuming a more normal condition.

Q. Wel will see about that. How far have you examined this vein easterly of the east end line of the West End claim in any underground workings? How far have the workings extended east-

964 erly from the east end line to the west end line?

A. How far have workings extended?

Q. Yes, 4 or 500 feet?

A. I don't know. A long way. Just east of the east end line of the West End ground is the ground of the Tonopah Mining Company which is explored a long distance to the east.

Q. On this vein?

A. I don't know whether it is on this vein or not.

Q. How far have the workings upon this vein been extended easterly of the east end line of the West End claim?

A. The greatest distance to which I have followed this vein in these workings is on the 600 level of the Tonopah Mining Company in a drift which is also the sill of a stope, and which is not marked with any designated number.

Q. Well, put a number there. The most easterly extension of that vein which you have found?

A. I will put a number 10 there.

Q. Just put an arrow pointing to the number 10 for better identification. You have marked the place you refer to as number 10, with an arrow pointing to it, on the Defendant's model exhibit A, have you?

A. Yes sir.

Q. Do you mean, Mr. Searls, that that is the most easterly point to which you have seen workings upon this vein?

A. That is true.

Q. What do you do with the vein, that portion of the same stope that continues on easterly there for 70 feet, I shoud judge?

965 A. I don't do anything. I have never been in it and do not know anything about it.

Q. Never have been there?

A. No sir.

Q. Have you never been in the stopeing marked on the annex to this model T. Co. for T. Company?

A. I think I have walked around in there once when that stope had not reached the dimensions which is shown it has on that model.

Q. Well, the same stope in which you have marked 10, with the arrow, is shown upon the Plaintiff's model, isn't it, extending on easterly?

A. It is so shown.

Q. Well, you think that to the easterly terminus of that stope it is all in one vein, of course?

A. I have never been in that. Know nothing about it.

Q. Have you been in these workings of the Tonopah Company, shown on this annex in yellow?

A. I have, yes sir.

Q. What?

A. I have walked through on my way to the Desert Queen, yes sir.

Q. Hoe recently?

A. Within the last month. I think so; within the last two months, anywa-.

Q. Would you be inclined from the observations you have made of the stope at the point where you have marked 10 with the arrow, and having passed through the stope marked T. Co. to conclude that the stope marked T. Co. is a stope in this same vein that we have been talking about, or that it belongs to some different vein, or
966 have you no opinion upon that, assuming this stopeing to be as shown upon the model?

A. I think it quite likely that it represents a portion of the same vein.

Q. I understand you to say you have also been through the workings shown in this annex to the model exhibit A colored in yellow?

A. I have walked through there, yes sir.

Q. Have you been—of course you have been along the stopeing colored in yellow on this model near the easterly end line, or both east and west of the easterly end line of the west end claim in which you have found the figures on this model 461, 411 E, and thence on to the easterly terminus of that work shown in yellow?

A. There is no stopeing shown at the points indicated.

Q. I say you have been along that line of work?

A. Yes sir.

Q. That is in the north dipping limb of this vein?

A. No sir.

Q. Is it in the vein?

A. It is within the aura or halo of stringers which go up from the main portion of that vein into the hanging wall.

Q. Lies in the hanging wall. What about this work shown in yellow near the east end line on this model in which the figures 537 are found? Is that in the vein?

A. Yes sir.

Q. That is in the north dipping limb of your vein?

A. Yes sir.

Q. Have you been in this work shown in yellow crossing the easterly end line, the westerly terminus of it being nearly on the east end line of the West End claim, and extending thence for
967 a distance of 50 or 60 feet westerly?

A. Yes sir.

Q. In the form of a stope?
A. Yes sir.
Q. You have been in that?
A. Yes sir.
Q. That is on your north dipping vein?
A. It is on a north dipping vein, which I think has no connection whatsoever with the West End MacNamara vein, except that it may intersect it in depth, or join it.
Q. You have the West End MacNamara vein in the 537 raise, so marked, back to t-is connection with a raise in purple?
A. 537.
Q. Marked 537 also?
A. The 537, yes, and the other marked 537 we call 569.
Q. Well, 537 on this model?
A. Yes sir.
Q. 569 on your model. That is nearly the flat part of it?
A. Yes sir.
Q. The vertical part bein- colored in purple and the nearly horizontal part bein- colored yellow?
A. Yes sir.
Q. Now, is that colored in yellow clear back to its connection with the vertical raise 537 in your north dipping vein?
A. Yes sir.
Q. And yet you think that the stopeing in yellow to which I now point—I will have you number that.
A. Number it 11.
Q. Put an arrow on that, too.
A. (Witness does so.)
Q. Where you state that the working colored in yellow just previously referred to, running out from the 537 raise, the yel-
968 low portion also being marked 537, is in the north dipping limb of that vein of yours, you are of the opinion that the stopeing which you have marked eleven with an arrow pointing to the number, is in another vein?
A. I think it is perfectly obvious on this model that this stope, which is not correctly shown, having a little more of a northerly dip than is here shown, cannot possibly be on the same vein as the flat working marked 537 and painted yellow is.
The other vein obviously on this model underlies it, and if any further evidence were needed to be sure that the vein in the stope marked 11 is a different vein, it is furnished by the fact that the vein in 537, being the West End MacNamara vein, lies on a contact of the glassy trachyte and Mizpah trachyte, whereas this steeper dipping little vein of a size and width that is almost insignificant in comparison to the extent of the others, is in the Mizpah trachyte throughout its distance, and comprises one of several stringers through the Mizpah trachyte which are not shown on the 500 cross cut on this model.
Q. Speaking of its insignificance, it is represented at least as being larger than the vein disclosed in the 537 practically horizontal raise which you say is in your north dipping vein?
A. It is in it, yes sir.

Q. And the vein in the stope which you have marked 11 with an arrow pointing to it, as represented on the model, at least is larger than the vein as you have it in the 537?

A. It is larger than the working, not larger than the vein.

Q. What is the difference between the point where you
969 have your north dipping in the vertical portion of the 537 raise to the westerly end of the stope marked 11?

A. You ask for the distance between the two points. The distance between the two points is 60 feet in a direction almost at right angles to the plane of the West End MacNamara vein.

Q. What is the horizontal distance between the two?

A. 29 feet.

Q. How much?

A. 29 feet.

Q. What is the vertical distance?

A. About 31 feet. The first distance given you was scaled off the model, and the others off the map, so that the latter are more correct.

Q. Now, this working on the annex to the model Exhibit A colored in yellow, and which you say you have been through, is that in the vein? Are those workings in the vein?

A. Yes sir.

Q. Do you think that those workings are in the MacNamara vein?

A. I do not.

Q. Do you think the vein there is an entirely separate and distinct vein?

A. I do, yes sir. My reason for so thinking in—one reason for so thinking is that it lies entirely in the Mizpah trachyte, and another is that it does not conform in strike, dip or position to the West End MacNamara vein.

Q. Do you understand that there has been a north and south faulting between the stopeing shown on this annex and the stopeing shown on the main portion of the model?

A. I believe there has.

Q. Would that account for the difference in their position?
970 A. It would partially account for the difference in position, or might fully account for the difference in position, but not for the other fact mentioned.

Q. Have you been in the working which I will have you mark 12, with an arrow pointing to it, which extends upward, inclining southerly as you go up?

A. I have not. I think I have been up a few feet in the small stope that lies to the north of that, east of that.

Q. The stopeing that you were in going up on a dip to the north?

A. It was. I think you were mistaken in the question or I was mistaken in the answer. The stope goes up to the south, and not to the north.

Q. But it goes up on a northerly dipping body of ore?

A. Yes sir.

Q. What do you mean, Mr. Searls, by the strike of a vein?

A. The strike of a vein is the direction of a line at which a vein

would intersect a horizontal plane at the point where the observation is taken.

Mr. Dickson:

(Q.) What is that? Just read that answer.

(The reporter read the answer.)

Q. What do you mean by the general strike of a vein?

A. By the general strike of a vein I mean the azimuth or direction of a line which connects the extremity of the tracing of t-e vein upon a horizontal plane throughout the extent of the vein through which the general strike is taken.

Q. You have given the strike of this vein in direct as being north 5 west?

A. At a point.

971 Q. At what point was that that you obtained that strike?

A. I don't remember the place in my direct testimony to which you refer.

Q. It was near the westerly edge, what you term the westerly terminal edge, wasn't it?

A. I don't remember it—giving that strike,—I remember giving the course or direction of the apex of the vein.

Q. No; the strike of the vein you gave as north five west. If you do not now recall the place that you then had reference to, I will ask you to give us the course of the strike of the vein, at or near what you call the westerly terminal edge?

A. On each leg, or at which point?

Q. The entire vein both legs?

A. The general strike?

Q. The strike in that locality. My recollection is that it was in that vicinity that you ascertained the strike to be north five west; I want to see whether I am correct or not. Do you remember the place Mr. Lindley?

Mr. Lindley: My recollection was that he was tracing the course of the apex along the vein, and taking in its entire exposure of the north and south leg. I have a vague recollection, however.

Mr. Dickson: I have it in my notes, strike north five west. I may have made a mistake about it.

Mr. Lindley: I am not sure about it. You might turn to the testimony and find out about it. Was that on direct.

Mr. Dickson: On direct, yes.

Mr. Lindley: You are not confusing Mr. Searls' testimony with Mr. Siebert's testimony, are you?

Mr. Dickson: No, Mr. Siebert gave it north fifteen west,

972 and at one point Mr. Searls gave it north five west.

Mr. Dickson: Can you give to the court now the average strike of this vein?

A. I cannot give the average strike of the whole vein because I am not familiar with the whole vein.

Q. Well, give us what you *cal*im to be the strike of the vein at the easterly end line of the West End claim, or in that vicinity?

A. The strike at the easterly end line of the West End claim.

Q. Well, what is the strike of the vein?

A. The strike of the vein at the easterly end line of the West End claim is that shown on the map of the 400 level.

Q. Well, what is it, what is its course?

A. The local strike is from about north sixty degrees east to north sixty degrees west.

Q. Where at the east end line of the claim—or didn't you understand the question?

A. On the 400 level——

Q. What is the general strike or the average strike of that vein, including both its limbs, at, or in close proximity to the east end line of the West End claim? That is what I want.

Mr. Lindley: Well, to get a strike you have to go some distance; if you get a general strike you have to take the extreme exposure.

Mr. Dickson: I say, the general strike in that particular locality. I am not speaking of a point, I say at, or near, and along and in the direction of—I will change that. At or near the east end line of the West End claim, taking in both limbs of your vein, tell the court what the strike of your vein is in that locality?

973 A. We have in the vicinity of the east end line of the West End claim, no continuous exposure on a level of the vein, but on the 400 level, a distance of about 120 feet from the east end line, the strike of the vein is well exposed, as changing from a north easterly, around through every degree to northerly, to north westerly, to as much as north fifty or sixty west; that is the best place to get the strike, in the vicinity of the east end line of the claim.

Q. Has this vein any average strike? Have you been able to ascertain the average strike of the vein?

A. I can ascertain the average strike of the vein within the exposures of it within this ground; the average strike of the whole vein, is a good deal like the average strike of the bottom of a tin can that has had a good many dents put into it.

Q. What is the average strike of this vein, if — are able to give it to us, so far as the vein has been disclosed in all of the workings shown upon the model?

A. About north fifteen or twenty degrees west.

Q. Now is your ruler, as it is laid upon the map upon which model, Plaintiff's exhibit 2 now stands, along the course of the general strike of the vein?

A. Approximately so.

Q. Give it to suit yourself, now. Lay the ruler upon what you believe to represent, in the direction that you believe to represent the average strike of this vein?

A. That is about it (indicating).

Q. Now, I will have you draw a line there,—get it fixed again, have you got it the way that you want it now?

A. Yes, practically.

Q. Now, draw a line, make a little more prominent line than this. That would be obliterated.

A. (Indicating.)

974 Q. Now mark over that average strike of vein as given by Searls.

A. (Indicating.) I have so designated that line.

Q. Give me again you- definition of strike, if you please?

A. Of general strike.

Q. What?

A. Of general strike.

Q. No. Your definition of strike that you first gave.

A. I gave two.

Q. Well, give them again then?

A. I said that the strike of the vein was the strike of the line at which it intersects a horizontal plane, at the point at which the observation is taken; the general strike of the vein is the azimuth, or direction of the line connecting the extremities of the trace of the vein upon a horizontal plane throughout the distance to which the general strike is taken, to the extent of the vein.

Q. The distance to which it has been developed on any given or horizontal plane,—is that correct?

A. Yes.

Q. I will ask you to pass a horizontal plane through the vein on the 400 level, and give us the course of the line of intersection, as you have in your first definition of strike?

Mr. Lindley: Now let us understand each other before we proceed. Please read the last question.

(Question read.)

Mr. Lindley: At what point of observation?

Mr. Dickson: Any point that you select.

Mr. Lindley: Well, that is the element of his first definition, he had a point in observation.

Mr. Dickson: Well, he may select any point of observation that he chooses. My question said under his first definition which was including the first point of observation.

975 A. The north limb of the West End-MacNamara vein extends on the four hundred level to a point considerably beyond, and to the northwest of any exposure that is delineated upon this map, so that the strike or direction of the line——

Q. Which map are you referring to?

A. Plaintiff's Exhibit-1 or any other map in court—so that the direction of a line connecting the extremities of the exposure of the vein,——

Q. Well, that is your second definition, you are now referring to?

A. Oh, you want——

Q. The first definition. Give us your first definition again, so that we won't have any other misunderstanding?

A. The strike of a vein at a point, is the direction of an intersection upon a horizontal plane of the vein at that point. On the four hundred level the strike——

Q. I want you to take in both branches—select a point of observation from which you can give us both veins.

A. The strike at a point near station 123-B on the 400 level in exhibit "Finch-5" is north 44 degrees west.

Q. What is your point of observation selected?

A. Point station 123-B.

Q. Would that include both limbs of your anticlinal vein?

A. It is impossible to take a local strike and include both limbs of the anticline.

Mr. Lindley: You have got to take the second definition in order to reach a general strike.

Mr. Dickson: Can you give the strike of the vein including both limbs as the vein is disclosed on the four hundred level?

976 A. The nearest we could come to it judge, would be to take the strike at the point of the toe of the anticline, where the vein is swinging around from a northerly to a southerly dip, in which case, depending upon the e-act point that you take the observation, you could get a widely variable strike; in the vicinity of the McQuillan shaft, or the drift just south of there the strike is north and south.

Q. Are you unable to give the general strike of the vein, including both limbs of the vein, both limbs of the anticlinal fold, take any place where the two are disclosed on the four hundred level?

A. I am not unable to do so; you have not asked me to do so.

Mr. Dickson: Please read the last question.

(Question read.)

Q. Do you understand the question?

A. Yes; I answered it that I was not unable to do so.

Q. Well, you are able to do so?

A. Yes.

Q. Then please do so.

A. As I started to say, the vein on the 400 level is not developed,—it is developed to an extent, to a considerable extent to the north and northwest of any point exhibited on any of the maps exhibited in court.

Mr. Lindley: I understood the question was, Mr. Dickson, to involve the extremities of the vein as shown on the map, or what is developed in the ground?

Mr. Dickson: The same as it is developed in the ground.

Mr. Lindley: Very well.

Mr. Dickson: Well, can't you carry out the development on the north dipping, here, so as to enable you to give us——

A. I can.

Q. Well give it and then give us the average strike.

977 A. The last observed dip that I have on the West End MacNamara vein——

Q. One moment; proceed.

A. The last observed dip that I have to the northwest and the MacNamara vein is in the vicinity of station N 127, where I have an observation that the vein dips 22 degrees. If it continued on that

dip to the elevation of the 400 level, it would at that elevation be to the north west, nearly north, a distance of 300 feet further. So that by connecting a point on the farthest exposure on the 400 level to that point 300 feet north of station M 128, it would have an approximation to the strike—to the average general strike of the vein as exposed in these workings on the 400 level.

Q. Including both limbs?

A. Including both limbs.

Q. What is it?

A. You want it very closely, Judge, or an approximation within 3 or 4 degrees?

Q. Oh, a degree or 2 won't make any difference.

A. It would be around north 10 or 12 west, the azimuth of that line.

Q. Come to the Defendant's Exhibit D. The map purports to be a map of the 400 level, and give me the strike of the vein as disclosed on that level, from the point in which we find the El, for elevation, 6640, point 4, back westerly to the vicinity of where the McQuillan shaft cuts the vein?

A. There is no vein exposed continuously between those points, so there is no vein that has a strike.

978 Q. Isn't there a vein at the elevation point 6640 on that level?

A. Not as so designated on that level.

Q. Well, at 1226 B then?

A. At 1226 B there is a vein which stands very steeply and strikes about north 45 east.

Q. What vein is that?

A. It is a little stringer in the trachyte, about a foot wide.

Q. Is any portion of your West End MacNamara vein shown as far easterly on this level as that station No. 1226 B?

A. No sir.

Q. No part of it?

A. No sir.

Q. Where is the easterly extremity on the 400 level of the development of this so-called West End MacNamara vein?

A. The easterly extremity on that level is a curve and not a sharp extremity, and is in the working between the McQuillan shaft and——

Q. Just mark on Defendant's exhibit the easterly termination of that vein on that level?

A. There is no easterly terminus.

Q. What?

A. There is no easterly terminus of the vein.

Q. Don't the toe terminate it?

A. No sir.

Q. Can you find the easterly terminus of the vein on that level, on Defendant's map, Exhibit D? If so, point it out and designate it.

A. The most easterly exposure of the vein upon that level

979 is a curved line which runs——

Q. I want that put on with some degree of accuracy, and

put it on with permanent color so we will be able to refer to it, what you call the easterly extremity of the vein as it is shown on that level?

A. I do not call it the easterly extremity; I call -- the most easterly exposure. It is a curved line which I will mark S.

Q. Mark it S on the other end, then, of the curved line.

A. (Witness does so.) Beyond this line——

Q. Wait a moment: does the curve stop at the place where you have stopped the heavy pencil?

A. No sir.

Q. Well, carry it out.

A. It is already shown upon——

Q. Well, I want it shown on this. Do not go any further for my purpose, unless you wish to carry it further.

Now, Mr. Searls, I will have you rub out your little S mark, and put it in another place. Put an S at either end of the heavy curved line in pencil placed on Defendant's map, Exhibit D.

A. I will say in explanation of that line that that represents very approximately the hanging wall of the solid body of quartz where it goes around the toe of the anticline the change of strike is shown.

Q. The strike would differ every inch, or fraction of an inch as you pass around the curve. Is the vein there, as developed on that level, easterly of the easterly edge of that curve?

A. There is in a level to the east of that a great many
980 stringers of quartz which comprise the hanging wall, stringer zone is the hanging wall of the main solid body of quartz.

Q. Are we to understand that in your judgment all that is shown in red on this Exhibit D, and in yellow on this Exhibit D east of this curve you have placed there is in the hanging wall country?

A. That is true.

Q. Has not been stoped?

A. No sir.

Q. What?

A. No sir.

The Court: This case is continued until 2 o'clock this afternoon.

981 Afternoon Session, Two o'Clock p. m.

The Court: The Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

Cross examination of FRED J. SEARLS, Resumed.

Mr. Dickson:

Q. As I understand you Mr. Searls, none of the work on the 400 level on this map Exhibit-D, easterly of the easterly extremities of the curbed line, that you have placed upon that map, is in the vein. No part of it east of that curve?

A. I do not know what line you refer to, judge.

Q. The line that you placed just before the adjournment, the recess on Exhibit-D, that curved line with the letters S. S.

A. That line represents the hanging wall boundary of the solid part of the quartz of the vein. East of that stringers of quartz varying in size extend in ramifying directions through the Mizpah trachyte.

Q. So, then, is it your understanding or belief, or opinion on all of the workings on that level east of the curve are outside of this vein, not in the vein?

A. I think that a portion of the Mizpah trachyte country rock is so filled with stringers, is properly considered as a part of the vein.

Q. Are those workings east of that curved line, in your judgment in the hanging wall country, all of them?

A. They are in the hanging wall of the solid portion of
982 the vein. A portion of them are in the hanging wall country, so impregnated with stringers of quartz that they can properly, and should properly be considered as being in the vein. To the east of that they are in the country.

Q. Directing your attention for a moment to the model, Plaintiff's Exhibit-2, and to that portion of it westerly from where the section-13 in the glass model is passed through stopes 8 and 9 A, and 8-A and 9, you see the region of the country I point to, I will ask you if the north dipping vein there is not distributed by faulting?

A. It is distributed by faulting.

Q. That is all on that point. Now, at the bottom of the work here marked—what is that number?

A. 658.

Q. Is the bottom of that raise in the south dipping limb of your vein?

A. Yes, sir, well towards the foot wall side of it.

Q. Now, will you give me the strike from that point to the northerly dipping limb of the vein, the deepest workings shown upon the model?

Mr. Lindley: Treating it as a separate vein?

Mr. Dickson: No treating it as one vein.

Mr. Lindley: You said to the northerly dipping vein, what point on that north dipping vein?

Mr. Dickson: That I cannot tell, until you give me the strike.

A. The strike—the direction of a line giving the point at the bottom of raise 658 to the most northwesterly development upon the vein shown upon this model, would represent the strike of the vein.

Q. What is the strike of the vein including both of its branches from the bottom of this raise 658 to the southerly dipping
983 vein? From thence north what is the strike.

A. Read the question please.

Mr. Lindley: Including both north and south dipping veins?

Mr. Dickson: Yes.

(The Reporter read the question.)

A. The local strike of the vein at the bottom of 658 raise is about north and south. The strike—genera- strike of the vein is not different at that point from the point testified to this morning. I feel as though I ought to make a brief explanation that in a vein that is so

irregular as this vein is, that the general strike is a futile sort of a direction. One might just as well ask for the strike of a contour map, or for the strike of the surface of Oddie Mountain, as for the strike of the vein.

Q. Well, I am not now asking this question for the general strike. What do you claim the strike of the vein to be from the bottom of raise 658 to the north?

A. The general strike *is* developed in these workings, as nearly as I can ascertain it, is in a direction somewhat west of north. About north twenty or thirty west.

Q. Have you a piece of twine here? Attach that twine to the vein in the bottom of raise 658, and taking the local strike northerly, attach the other end of it to where it would come on the north dipping vein, taking that local strike?

A. I do not know where the point on the north dipping vein at the same elevation as this is located, so that I cannot attach the other end of the twine to it. It would be some distance off of this model. Somewhere presumably down in the Tonopah Extension workings.

Q. Have you been down the Tonopah Extension workings?

984 —. Only a very short distance.

Q. Can you farther up on the south dipping limb, select a place and give us the strike between that and the north dipping limb—local strike?

A. You do not need a piece of twine to give the local strike, I have already given that in a number of places.

Q. What is that?

A. I do not need a piece of twine to give the local strike. The local strike for instance at the end of the third level——

Q. Point out where? Can't you start in here (indicating)?

A. The local strike on the West End MacNamara vein, near the westerly extremity of the 500 level is about north thirty degrees east. North sixty degrees east, as shown by the direction of the drift.

Q. Well, if we take that strike there, of course, the strike would be on a horizontal plane?

A. Yes.

Q. And what would be the difference from the point here on the south dipping vein to the point on the north dipping vein?

A. I don't know.

Q. Well about how many hundred feet?

A. To follow around the vein I presume that it would be——

Q. No, on the course you gave?

A. On the course I gave—on the course of a local strike?

Q. Yes.

A. You would proceed on that local strike for a distance of fourteen or fifteen hundred feet and then swing around presumably.

Q. Well what did you give me the local strike to be on the 400 level?

A. About north sixty east.

Q. Do you know of any vein beneath the surface of the Eureka or Curtis claims, except the south dipping limb of this West End

985 MacNamara vein, the Fraction vein?

A. Yes.

Q. Have you another one?

A. Yes.

Q. Lying still deeper do you mean?

A. There is one lying still deeper, there is also one called the Wandering Boy vein, which lies under the Curtis vein for a portion of its distance.

Q. Take the Eureka claim—is there any except the Fraction vein and the south dipping limb of the West End-NacNamara claim?

A. Yes, the south vein, which is a branch of the main West End MacNamara vein.

Q. Well, apart from that any others?

A. I know of no others.

Q. Now, do I understand that the vein apart from the Fraction vein, that the vein underlying the Eureka, or the south dipping limb of the West End MacNamara vein, that portion of it which is found beneath the surface of the Eureka claim, lies in a vein, the top or apex of which crosses the side line of the West End claim, and is found along this westerly terminal edge?

A. That is true.

Q. When did you first reach that conclusion?

A. I first reached that conclusion sometime in August, as I recall it.

Q. Can you give the date any more specifically?

A. Towards the latter part of August. I cannot recall exactly.

Q. Did you communicate to counsel fro the Plaintiff company that conclusion?

A. Yes, sir.

Q. I suppose that as soon as you had arrived at the conclusion?

A. Shortly after having arrived at that conclusion I was in San Francisco, and discussed the matter with Judge Lindley.

Q. I did not hear?

986 A. Shortly after having arrived at that conclusion I was in San Francisco and discussed the matter with Judge Lindley.

Q. Do you remember how early that was or how late—can you fix the date of that, what month?

A. I did not discuss that matter personally; I wrote Judge Lindley a letter, he being east. I can find that letter and get the date, but I don't recall exactly.

Q. Was it in August?

A. Judge Lindley, do you recall when you were in Washington, at what time?

Mr. Lindley: I have been twice in Washington in the past three months.

A. Sometime in the latter part of August.

Mr. Dickson: That is all.

Mr. Lindley: In the early part of September, I think I was there.

Mr. Dickson: No further cross examination.

Mr. Lindley: I don't know. I might ask possibly the purpose of

the cross examination. What time was the answer filed in this case, Mr. Clerk, will you get me the answer in the case.

The Clerk: August 28th.

Mr. Lindley: *In* there any suggestions that that replication does not sufficiently cover this matter?

Mr. Dickson: No, I do not want to contend that.

Mr. Lindley: I will state very frankly that when this suit was brought, I did not take this situation into account,——

Mr. Dickson: There is nothing to conceal. I will state the purpose of it. In the replication I have in mind it is alleged in effect, that the vein underlying the Eureka and Curtis claims, has not its top or any part of its top or apex anywhere within the West End claim.

987 Mr. Lindley: I think that there is a little mistake in that phrasing. May I look at that replication. If there is any question about it, I will ask leave to amend.

Mr. Dickson: I do not think that there is any necessity to amend. To be perfectly frank I will call your attention to another point that throws some light upon it, and that is in your answer filed to the complaint of the West End Company.

Mr. Lindley: In the Fraction vein suit?

Mr. Dickson: Yes.

Mr. Lindley: That is not an issue here.

Mr. Dickson: No, but I intend to offer that answer in evidence. I thought maybe it would be fairer to you.

Mr. Lindley: To offer an answer or pleading in another case?

Mr. Dickson: Yes.

988 Mr. Lindley: Well, if there is anything wrong about these pleadings, we will have them straightened out before this case goes to the Judge.

Mr. Dickson: The only thing I claim about the pleadings is that they are insufficient with the theories——

Mr. Lindley: Well, you may say that the theory in August was a recent construction. I will confess myself that I was somewhat surprised at the demonstrated results.

The Court: Do you make that offer?

Mr. Dickson: No, until we come to rebuttal. I was just explaining——

Mr. Lindley: I am reading now from the replication filed in this case: (reading).

Mr. Dickson (reading): "Plaintiff denies that there is any portion of a vein or lode within the exterior boundaries and extended downward vertically of the said Eureke lode mining Claim, and the said Curtis Lod- Mining Claim, or either of them, which has its top or apex, or pany part thereof, within the exterior boundaries extended downward vertically of the said West End Mining claim."

Mr. Lindley: Which in its downward course lies within the exterior boundaries.

Mr. Dickson: I read that entire allegation.

Mr. Lindley: So far as Counsel is concerned in this case, the revelation came to me when I got a report from the engineer as to what the developments were at that end. Of course, I do not

conceive that it makes any difference to this case, and I am going to try and see if I can possibly get to this Court without involving that question. Because if they have an extralateral right in
989 any other direction, it does not concern us; and I do not want to mix up with the affairs of our neighbors. If this is an anticlinal vein, there is no extralateral rights. But if the question is insisted upon and is necessary to determine it, I am here for that purpose. I do not know when we get to the argument of this case, what position I shall take upon it. I do not want any question in the mind of the Court or Counsel on either side as to the status of these pleadings. If the issue is not fairly set up, I want the privilege of amending.

Mr. Dickson: I do not say that there is any amendment necessary in order for you to try the issues that are involved here. What I do contend is that in the pleadings, the replication in this case and the answer in the other case, which I will offer when we come to rebuttal, we find allegations that are not reconcilable with the present contention of the Plaintiff Company as to where the top or apex of this vein is.

(Further discussion by respective Counsel.)

Mr. Lindley: Are you through with Mr. Searls, Mr. Dickson?

Mr. Dickson: Yes.

Redirect examination.

Mr. Lindley:

(Q.) Now, Mr. Searls, marked on the map there are two sections, Y, X, and P M. What do those sections represent?

A. The section XY is—the section line X Y represented
990 on the map is the plane of a vertical cross section similar to the G G which I have introduced. It was surveyed with the expectation of platting upon it the exact reproduction of the occurrences of quartz along that section, as was done in the section G. G. The labor necessary to correctly portray all quartz existing in the vertical plane that such a section cuts is very considerable, and it was found impossible to do all of the work necessary to complete that section.

The section P M is a section line upon which a section was constructed from the McQuillan shaft, discovery shaft of the West End claim to the Porcupine shaft. It shows a dip upon the West End MacNamara vein of 12 degrees from its apex near the Porcupine shaft to the McQuillan shaft.

However, it was found that in portraying upon that section the position of the vein and of the Siebert fault, so much projection was necessary, there being considerable *are* where no workings were cut, that it was believed that it was not a satisfactory section to offer in evidence on account of the amount of projection.

Q. Now, Mr. Searls, since you were under direct examination, has there been a connection made with what we call 200 A, and the Defendant calls raise A, with the old drift marked on this model—the old raise marked 262?

A. There has been such a connection made in approximately the direction which I now hold my pencil. The connecting work is a diagonal raise which has followed throughout its extent the Siebert fault, exposed above in A raise and in the 252 raise.

991 So that is now absolutely demonstrated by the workings that the Siebert fault shown in the lower portion of the 252 raise below the 195 intermediate, and continuing up the 252 raise is the same identical gouge as shown in A raise.

And the working there further shows a number of quartz stringers above the vein which are cut off and terminated by the gouge.

Q. That would indicate what, with reference to the position of the Siebert fault and the south side of the anticline?

A. It shows clearly the divergence in strike of the Siebert fault and the north limb of the anticline. The Siebert fault, as disclosed in the A raise, and in the now connecting raise strikes about north 27 degrees west.

Mr. Lindley: I think that is all for the present. Call Professor Lawson. Oh, do you want to examine him about this?

Mr. Dickson: No.

Mr. Lindley: I would like to make this reservation with reference to this witness, that if before the case closes there is any other completed work being done by the other side, I may recall him simply for the purpose as to that work.

The Court: That may be done.

992 Testimony of ANDREW C. LAWSON, who, being called and duly sworn as a witness on behalf of the Plaintiff, testified as follows, to wit:

Direct examination.

Mr. Lindley:

(Q.) Professor Lawson, what is your profession?

A. I am professor of geology in the State University of California.

Q. How long have you been occupying the chair of geology in the University of California?

A. I have been there for 24 years.

Q. Prior to coming to the chair of geology of the University of California, what had been your previous experience or education in reference to your profession?

A. I was graduated a Bachelor of Arts of the University of Toronto in 1883, and Doctor of Philosophy at John Hopkins a few years later, and had in those years between the time of graduation and the time of coming to California engaged continuously on the geological survey of Canada as a geologist.

Q. Since coming to the chair of geology in the University of California, what has been your extent of experience in the field with reference to economic geology?

A. I have been every year since I have come to California, been engaged in the investigation of economic problems. I have

993 examined mines and investigated economic problems in geology throughout nearly all of the western states, and in various parts of Canada, and in Central America and Mexico; generally, of course, during the summer vacations of the University.

994 Q. Are you familiar with the region known as the Tonopah District, in which the mines in controversy in this case lie?

A. Yes.

Q. When did you first become acquainted with the conditions here?

A. In the year 1908.

Q. Under what circumstances?

A. At the time of the controversy between the MacNamara Mining Company and the West End mining company, I was engaged in investigating the condition of the two mines at that time in behalf of the MacNamara Mining Company.

Q. And to what extent did you investigate the conditions at that time?

A. To what extent?

Q. Yes.

A. Well, the investigation was not complete at the time when the controversy was closed by an agreement between the companies, but I had occasion to become familiar, fairly familiar with the underground workings of the two mines.

Q. Which are those two mines?

A. Those two mines are the MacNamara mine and the West End mine.

Q. Without undertaking to state at this juncture your deductions at this time, I will proceed to your later investigations. Have you been recently engaged in making an investigation in the region in controversy in this case, involving the Jim Butler the West End and the MacNamara workings?

A. I have.

Q. With reference to the result of your investigations, has there been any modification of your opinion expressed on your first examination?

A. No. As to the essential features of the West End MacNamara vein, the views that I have arrived at in my recent study confirm those that I had arrived at six years ago.

995 Q. Now, I will ask you to state Professor Lawson, in your own way the position that these veins occupy in the country rock, the relationship which the veins occupy towards those rocks, and what is the nature and character of the veins from your observations in the underground workings of these two mines, and such other mines as you may have visited in connection with these workings?

A. Speaking first as to the nature and character of the vein. It seems to me that it may be useful to point out something, as to the general conditions which control the process of vein formation, particularly with reference to the relationship that exists between

the position of a vein, to the contact of different formations in the ground, and also the relationship which exists between the vein and the stringers which are associated with it.

Now with regard to the first point. There is one antecedent condition to the formation of a vein and that is formation of a fracture in the earth crust, but antecedent to the fracture there is another condition, a condition of stress in the earth's crust. The fracture is formed in consequence of the stress, the stress accumulates locally in the earth's crust to such an extent that after it has been accommodated for a long time, by an elastic deformation of the earth's crust,—the stress accumulates to such an extent that it overcomes the strength of the materials in that region, and there is a rupture, and that rupture is a sudden thing, but nevertheless, by that sudden rupture it breaks through some point where the rupture begins, and travels very rapidly but notwithstanding it
996 travels from some point through the rocks of the region.

Now, if there be a diverse condition as to strength of rocks in the earth's crust in that region, then those diverse conditions will modify or rather will determine locus or position of the rupture when it is formed. For example, to illustrate very briefly, if we have——

Q. Mark that "Lawson-1" if you please.

A. If we have in any region of the earth's crust a line of demarcation or boundary between two formations we will say lying in that position, and another line of demarcation maybe lying over here, and we have the stress operating in that block of the earth's crust in such a way as to tend to move this portion of the earth's crust in this direction, out from the blac-board, approximately normal to it. Then, in response to that stress there will be for a long time an elastic deformation of the ground; it will move slightly by creeping, and finally will rupture; now when it ruptures the stress may be relieved by the rupture in a variety of directions; it is not necessary that that rupture be relieved by a particular line of break; the relief may be effected by a break in a variety of positions and directions, in that ground and if these two lines or planes exist in the ground, then the relief will quite probably, and in many cases it is relieved by following along these lines, as plane of weakness; that is to say, that we may regard the possible lines of rupture as lying within a certain angle, and that if within that angle it would effect a relief of stress, there be any other planes whatsoever, of particular weakness, then the rupture will adopt those planes as the plane of rupture.
997 Now, that means, of course, that when the rupture becomes mineralized that in so far as the fissure or rupture has adopted these planes of contact between the different formations, to that extent it becomes a contact vein. And in connection with the use of the term contact vein I would here call attention to a matter that has come into the controversy to some slight extent, as to the terminology. It is true that in geological literature we have many contact veins which are at the -ontact of sedimentary rocks or igneous rocks, and we have in consequence of the great heat which has been given up by those igneous rocks, a metamorphic zone, a zone which we call a con-

tact metamorphic zone, and inasmuch as there are many ore deposits in such situations, we speak of them as contact metamorphic zones, but when discussing those matters in the literature of geology we cut out the word metamorphic and refer to them briefly as contact deposits, but that does not embrace all of the contact deposits; it is only a shortening of the name of those which are associated with thise places where we have intrusive rocks coming up from below, as through sedimentary rock. There are other contact veins and deposits which are not so metamorphic, and such a one as I have here would be a contact deposit, so I want to clear up there use of the term.

Now, further, when this rupture takes place, so that we may have a rupture following these lines which I have indicated here—the rupture may follow this line here, and it may leave it in consequence of the influence of the other plane of contact here, and we may have a fissure having what I have indicated in green color on the
998 diagram No. 1; to the extent that it follows the red line on either side, it would be a contact deposit; to the extent that it departs from those contacts, it would be an ordinary fissure vein, and we have in this particular vein here, an illustration of precisely that state of affairs, namely, a fissure and rupture in the earth's crust, because of particular stress accumulating on the materials, and then following in particular the contact between different formations; now, as to the relationship between the vein that would occupy this fissure and the later process of mineralization, we have associated with the vein a rather marked zone of stringers,—but I want to advert to the relationship that exists between the stringers and the main zone. When this movement takes place it is progressive, it does not all occur at once. The process of mineralization is a long drawn out process; it is drawn out not only through years but doubtless through centuries and when the stress has been relieved by the first rupture we have a sudden movement forward of one piece of ground over the other to that extent. And that sudden jarring of the earth's crust is what creates an earthquake; earthquakes never create a rupture in the earth's crust, it is always the reverse, it is the rupture which creates the phenomena which we designate as an earthquake, the vibration of the ground; now, this process of the sudden movement at the time of the rupture is of the nature of an elastic rebound it starts that way and its tendency is to move this ground out away from the blackbord in this direction, normally to it, and there is a certain drag effect, an elastic drag, and that is within the lim-
999 its of the elasticity of the material, and when the rupture which creates the stress is relieved, this upper portion here would spring forward by reason of the relief from the control below and the lower part would swing back so that every fault is of the nature of an elastic rebound determined by the stress of the rock at the time when the release is effected. Now, when that stress has been relieved the actual amount of movement necessary to relieve it is usually quite small; when I say small I mean something less than forty or fifty feet; In so far as my experience goes in geology, so far as we know of the ruptures followed by earthquakes, to create the larger earthquakes, we know it is something less than fifty feet of

actual displacement, at the time of that movement; but we find many faults and fissures that have become mineralized where the displacement is many times fifty feet, and we are forced to conclude that in the process of the development of the fissure there has been a succession of movements, which is to say, that after the first stress has been relieved, it proceeds further to accumulate—it accumulates up to another stage when it is able to overcome the frictional resistance between these two sides of the ground, and there is another movement forward of the hanging wall upon the foot wall; and again that movement is an elastic rebound, the foot passing the hanging wall along a certain smaller limit, and we have therefore to recognize that the formation of a fissure which involves a large displacement must be a succession of small displacements extending through long periods of time.

1000 Further this friction of one wall on the other creates a very severe shattering of the walls in the region immediately adjacent to the zone of friction or to the surface of the friction. And these elastic rocks are broken, and they are shattered so that we have a series of cracks running through this zone, generally more or less transverse to the direction of the main fissure, but maybe sub-parallel to the fissure, and inasmuch as the foot wall is affected by the same process, it is also characterized by the development of similar cracks and similar fissures traversing it in a similar way, and those may be transverse to it or make any angle with it, or be sub-parallel to it.

So that in the development of any fissure, if the rocks, as to their general condition are the same above and below, or approximately the same, we have developed in both sides of the fissure a zone extending out to a variable extent from the main fissure, characterized by the presence of numerous small cracks.

So that this zone of cracks, and small fissures, when the mineralization process set in, and when the vein becomes filled by the deposit from the solutions that permeate that avenue of percolation, not only is the vein filled with mineral matter, quartz, ore, and so on, but the same materials filter into those cracks and fill them. Not only do they do that, but they have access to a very large surface indeed of the rock, and in that way are able to replace a very considerable zone of the rock itself by silica, and give rise to very large and important bodies of quartz, which never filled the spaces
1001 in the sense of cracks, but simply replaced particle by particle the solid quartz.

So that there is a very definite and genetic connection between these irregular stringers that accompany the main fissure.

The fact that that is so is not a mere inference, not a mere deduction from the mechanics of the situation was well shown at the time of the fault and fissure which was formed at the time of the California earthquake in 1906. I had particular occasion to study that earthquake in as great detail as was possible. I devoted a year or more to its detail study, and it was found that along that enormous fissure that extended down through the coast ranges along the coast of California for a distance of betw-en 270 and 300 miles, it was found that numerous places not only did we have a distinct rupture

through the earth's crust so that roads were faulted and fences and all physicial lines upon the surface of the earth were faulted and displaced as much as 21 feet *feet* as a maximum, and in very many instances as much as 15 feet; that not only was there displacement in *of* that particular rupture, but that on either side of that fissure there were numerous cracks extending out in all directions into the surrounding country.

So that we have not only, I say inferentially knowledge that this is the fact, but we have the observational knowledge that such things do happen. That when the fissure is formed, when the movement occurs, there is a development of auxil*l*iary cracks adjacent to and genetically connected with the main rupture through the
1002 earth's crust.

Now, I may pass, with those generalities, to the particular case before us. We have in this ground two prominent features. We have a vein which is known as the West End MacNamara vein, which extends broadly with a low dipping mineralized fissure, with accompanying zone of stringers above and below, and having a rolling character, so that one of these rolls is pronounced and has the form and figuration of what has been designated throughout this case as an anticlinal roll.

Now, that is one feature of that particular vein, and that vein was formed in the earth's crust by the mineralization of a contact fissure. I say a contact fissure in the sense in which I have alluded to it in this diagram, a fissure which was partly determined or formed along a contact plane and partly outside of the control of such contacts.

That fissure and the mineralization of the fissure to form the West End MacNamara vein was completed long before the appearance in this region of what is known as the Midway andesite. And the measure of that time between the formation of this vein and the appearance of the Midway andesite is in terms of erosion. Usually we measure the length of the geological time in terms of sedimentation. Geologists measure strata and estimate what has been the geological time by what they can see in the strata, by the deposits that have occurred in the region they are studying during the time they are thinking about. But it is also a well known princip*a*l in geology that we can also take some account of very large inter-
1003 vals of geological time by noting what has happened, not in the way of a deposition, but in the way of erosion; the extent and the amount of degradation of the earth's surface by the attack of rain and frost and the atmosphere generally, running water, all those things tend continually to reduce the inequalities of the earth's surface, to reduce them to the lower levels, carry away the waste, and so lower the surface. And if we note the extent of thos erosion, then we form some idea, at least, of the interval of time which was necessary for that erosion to be completed to the extent that we can observe.

Now, that erosion so far as that in this region about Tonopah is concerned, has proceeded so far that fissures—the veins that existed in the region were exposed at the surface as outcrops, and when the Midway andesite was poured out over this surface as a lava flow, it

buried the surface, and of course it buried also the outcrops of many valuable veins. That is, of course, one of the troubles in this camp, that the mines had to be sought for by blind exploration, very largely blind exploration beneath the overlying mantle of that particular lava we call Midway andesite.

After the accumulation of the Midway andesite, this region was subjected to a still further process of erosion. Another time interval was introduced, and during that time interval a large part of the Midway andesite was removed, and part of the old surface which was buried was resurrected by the removal of the cover, and that again was a long period of time. And that period of erosion was followed by a period of volcanic activity during which some volcano in
1004 this region erupted numerous fragments, thrown out by explosive violence into the air, and these fragments, fell through the air upon that surface and covered it, but that process of covering the ground with the materials thrown out by explosive violence from this volcano was not necessarily a thing that happened in a day. It was probably something that went on very much the way that Lassen Butte is acting at the present time, fitful operations and no large body of fragmental matters thrown out in any one day, or in one year. It may have taken a hundred years to have made any notable contribution to this large and thick volume of what we call the Fraction dacite breccia, for that is the material I am talking about.

This fragmental volcanic material, is not something that came out *out* of a volcano as a flow and spread out over the ground the way that lava does, but something that was thrown out into the air and fell there through a considerable radius of the country, a radius probably of many miles. And that particular material, I say, may well have accumulated slowly through years, but it buried the old surface that was evolved by the degradation and erosion, it buried the whole surface that was made at that time.

And where the Midway andesite had been removed here there were veins cropping out on that surface, and they were buried by the accumulating materials thrown up by the volcano. Now, these outcropping veins were sometimes very bold outcrops, they were outcrops that stuck up above the hillside several feet. They were features that would delight the eye of the prospector. He
1005 could see them from afar as combs running across the hillsides, and yet finally they were buried and were lost to sight and have been ever since until we have unearthed them by mining operations that reveal them precisely as they were at that time in the ground.

Now, I say a long period of geological time *that* had elapsed since the first formation of this vein. But the second notable feature of the region that I had in mind when I said there were two notable features in the region that I wanted to allude to, the second notable feature is the Siebert fault.

And the Siebert fault never existed in this region until after the Fraction dacite breccia had been spread out to a very considerable thickness over the entire region. So the interval that I have in-

dicated as having elapsed between the formation of the West End MacNamara vein, that interval is some measure of the time that has elapsed between the formation of the vein and the formation of the Siebert fault. The evidence of that point is perfectly clear from the geological point of view. Geologically we can see that this Siebert fault slices through the country in such a way as to cut the Midway andesite, and to cut the Fraction dacite breccia, and therefore it is absolutely certain, as anything can be, in the science of geology, that it occurred after those formations had been in existence, and the vein, West End MacNamara vein was in existence long before those formations appeared in this region.

So that seems to me to be a controlling consideration in coming to any decision as to the relationships here, and if I might
1006 detail some of the evidence of that fact, I perhaps need not go into the evidence of the existence of the West End MacNamara vein anterior to the coming out of the Midway andesite. I suppose everybody concedes that. But when we come to the consideration of the other question, it may be perhaps desireable to point out the evidence which supports that general view.

I will first point out some of the evidence as to the distinctness of these two features in the ground. You take any of the exposures in the ground where we can see the vein, the West End MacNamara vein, and compare it nearby with the Siebert fault, we are struck by first the contrast that exists between the gouge of the Siebert fault and the ancient, undurated and largely silicified gouge of the West End MacNamara vein. And to illustrate that contrast and diversity between the two things, I have two speciments that I would like to show the Court.

Mr. Lindley:

(Q.) Mark those Lawson 2 and 3.

A. They are difficult to mark with the pencil, they are so rough.

Q. We ought to have some pasters to stick on.

A. I have marked this one L. 2, and the other one L. 3. They can be more permanently marked later, I suppose.

The Court: They will be all marked again.

The Witness: Now, the piece of rock that I hold in my hand, marked L. 2, occurs very commonly indeed in the West End MacNamara vein, in many places at the top of the vein, in other places in the middle of the vein, and in still other places at the
1007 bottom of the vein. It represents in the ancient fissure, the gouge that was formed by the movement of one wall on the other, rubbing the material into fragments, and some of them into powder so that they became a pasty mass as a gouge, as it is called by the miners.

Now, this pasty mass is shown here, but it is indurated by the long process of sili-fication. It has become so hard that it is difficult to break with a hammer, and it is brittle. It is not a gouge in the ordinary sense at all. It might not be recognized even by the miners as a gouge, but, nevertheless, it is, because it has characteristic evidences that one can see many places in the mine of

that gouge. Now, there is the gouge of this vein. Here is a piece of the gouge from the Siebert fault, a soft material; you can dig your fingernails in it. It is generally moist. It is a tough gouge, plastic, tenacious and slabs off in a dangerous way by reason of its weakness, lack of strength of material.

1008 It is totally different from this particular gouge of the vein, and we have those two things, therefore, as an element in the distinction between the two things.

Now, by studying this gouge in its distribution, let us say the gouge marked L-2, the ancient silicified gouge of the vein, we have a criterion for determining whether or not this vein is continuous over this roll, or anticlinal feature of the vein. Take for example the upper stopes here of the MacNamara ground, we can see perfectly plainly along in the bottom of the stopes, and along the various pillars, that hold up the roof of a stope, we can see perfectly plainly this black streak so distinguished from the whitish quartz of the vein having a limited thickness, from the fraction of an inch to several inches, following the contact of the vein continuously around the top of the stope and on the north side, and on the south side. It is a feature which goes over the roll and shows clearly that there is continuity and identity of that particular vein over this place where the dip changes, and which we call the anticlinal axis.

That is true not only in the upper stopes of the MacNamara, and it is true in other places in the mine.

Now, another consideration which shows a distinctness of the two veins, their separateness, which I have shown are so separate in time, I want to show also their separateness in another point, for another reason, for regarding them as distinct from one another, and for that purpose I will call the attention of the Court to the fact that there was another episode in the history of this vein to which I have not alluded.

1009 That at some time anterior to the formation of the Siebert Fault the country was disturbed to a very moderate extent. They were minor deformations, and minor breaks, so that the vein is traversed by transverse fissures, and faults. We can see the vein dropped one portion against another a few feet in numerous places. Now, there are places where this Siebert Fault, as has been amply pointed out in the testimony, where the Siebert Fault comes very close to this vein, becomes tangent to it, as has been said, and we can see the relation of that Siebert fault with reference to the vein, we can see the relationship to these earlier small faults that have cut the vein. The Siebert Fault cuts these small ancient faults that have cut the vein and slices through them without any interruption whatever, and to make that clear I would like to sketch a diagram, or two or three diagrams to illustrate the fact that I am asserting. I may be permitted to use my notebook, as I desire to reproduce a sketch which I made in the ground, I suppose——

Q. Perfectly proper.

A. The sketch which I am placing on the board is a sketch——

Q. Mark that Lawson 4, please.

A. Taken on the 400 level. It is taken on the 400 level near the

McQuillan shaft. A little to the east of the McQuillan shaft, where two drifts come together. I see no number on the drift, but it is very close indeed to the McQuillan shaft.

Now, in this particular place, one may see what I shall endeavor to sketch. The red line represents a trace in the face of broken rock of the Siebert Fault. Now, below the Siebert Fault is a vein, and about here is one of these minor earlier faults, that have cut
1010 the vein, and at the right hand side of that fault, as shown in the blue line here, the vein is broken up and is a breccia. It is made up of broken pieces that are shattered with open texture, angular fragments of the -uartz, extending almost to the bottom of the drift. And beyond that zone is solid quartz the shattering being due to the particular fault in blue here, and which I may mark perhaps as "Earlier Fault," that fault in passing through the vein has had the effect of smashing up the quartz. This is all broken up, fragmental quartz and as you pass off eighteen inches or two feet from the fault this zone or broken up material ends, and we pass into the solid vein, so that the solid vein may be represented off here in this particular marking of blue, and I will write on that "solid vein" and I will write on the portion that is broken, I will write "breccia."

Now that is the appearance of the right hand side of the earlier fault, as we look at it. On the other side of the fault we have another appearance. I will say first that above the Siebert fault here we have the Mizpah trachyte which I will indicated by the letters "M. T." M. T. stands for Mizpah trac-yte, as the hanging wall of the Siebert fault, along here for a distance of five feet we can see the top of the vein and it has this configuration, that is the top of the vein (indicating). And I will write on there "top of vein."

I will indicate first that this top of the vein has a thickness varying from two to five inches, somewhat variable, and that the top of the vein is the ancient gouge, which I have referred to, and in speaking of the sample Exhibit L-2, it is the same type of ancient
1011 silicified gouge that forms the top of the vein in that particular streak. And this has a streaky appearance. Shows the characteristic streaky appearance of gouges, and it has little fragments of rock and quartz in it which are not thoroughly pulverized as the most of it was, at the time of the formation of this West End MacNamara vein.

Now below this ancient gouge we have the solid vein again. Of course that is solid too, but it is distinguished usually from the solid quartz below by the black color.

Then from here, as we go down to the bottom of the floor of the drift, about five feet, six feet, there is another jog in the vein, there is a break here, a short break by a little fault which goes on down here. That is the wrong pencil. Goes on here, the same streaky appearance that we have here. This continuation of that ancient gouge dropped down. And over here it is cut off by another fault and we do not see any more of that gouge off here but you see a piece of it lying in the ground tilted up at an angle of that kind (indicating). There is another piece of the gouge. And in between here we have the vein following the quartz, ordinary whitish quartz here.

I will write on the part of the vein referred to as gouge, I will write "silicified gouge."

Over on these two detached portions separated by faulting, I will put the letters "S. G." to indicate that they are the same silicified gouge.

Now, in this triangular area here (indicating) we have the Mizpah trachyte more or less broken down, more or less crushed, but nevertheless clearly the Mizpah trachyte as it originally laid upon the top of the West End MacNamara vein before the Siebert fault
1012 came along and separated this portion of the Mizpah trachyte from the portion of the Mizpah trachyte above the fault.

Now, inasmuch as the movement of the hanging wall upon the foot wall of the Siebert fault was down to the left, indicated by the arrow, insofar as this component motion is concerned in this plane there was a drag which was manifested at this place by the fact that this broken, brecciated quartz was dragged out here in a very definite way and one can see the drag out here (indicating). Broken pieces dragged out so that the fault plane is no longer apparent above this point here at the bottom of the drag, and that is material dragged by reason of the movement of the hanging wall over the foot wall.

Now, on the right side of this earlier fault which jogged the vein to quite an extent, there is no trace whatsoever of this ancient silicified gouge. It is entirely absent, there is no trace of it. The vein has been sliced through by the Siebert fault so as to remove the whole of the silicified gouge and some portion of the quartz below it. So that we have there the most positive and absolute proof that you could possibly have of the fact that the Siebert fault is a later thing than the West End MacNamara vein, and a very distinct thing indeed from it; a thing that is antecedent entirely to the existence of the vein.

Q. You said antecedent?

A. Antecedent to the existence——

Q. Subsequent?

A. Yes, subsequent, of course. Correct that, please. It is
1013 the wrong word. Subsequent.

Now, there are one or two other places where one can see that this is not a solitary thing. It is a characteristic thing. It is a thing that grows on one as he gets familiar with the mine. Take the case of the 473 winze. As 473 winze is shown on the model here, it has been followed down for some distance over the crest of the anticlinal curve of the vein and down on its northerly dip.

Q. One moment, professor. Have you got your number right there?

A. The number of what?

Q. That winze?

A. 573.

Q. You said 475.

A. Yes, 573. I stand corrected. On the 573 winze. In going down this winze, which has a very gentle dip going northerly, after it passes over the anticlinal curve, as we pass down that winze we can see in the walls of the winze that the vein which is followed by the

winze has been faulted to a slight extent. A fault of from 4 to 5 feet, and the appearance on the side of the winze is something like this. I will draw here against a red line.

Q. Mark that Lawson 5, please.

A. I beg your pardon?

Q. Lawson 5.

A. Lawson 5. I will draw a red line on the exhibit 5, which represents the trace of the Siebert fault on the side of the winze.

Remember, it is a flat winze, it is not a vertical winze, it is a
1014 flat winze so it is very nearly a drift. And on the side of the flat winze or drift we can see the trace of the fault.

We have below that fault an earlier fault exposed which extends in this relation to the Siebert fault, that blue line represent- one of these earlier small faults that dislocated the vein to a slight extent. And here we have the top of the vein (indicating).

And down here we have the top of the vein, and the distance of the displacement of the top of the vein from the left side of the blue line or earlier fault, to the right side is about 4 or 5 feet.

I will have to change that. I made an error in copying the note.

1015 Beginning over again on "Lawson No. 5," the red line will as before represent the course of the Siebert fault and here is the blue line again representing the earlier fault that jogs the vein; I will mark it "earlier fault," and will mark the red line "Siebert fault," and hereon, on this side, is the top of the vein and above the top of the vein is the trachyte which I will mark "M T" Mizpah trachyte, and on this side is the top of the vein dropped down four or five feet of down pull on the earlier fault and the vein extends down to the—well, to the bottom here, and the jog of the little fault is very plain.

The contract between the Mizpah trachyte in the down thrown side of the fault, or on the left hand side of the fault, marked M T, and the quartz immediately opposite it, is pretty clear. Now the illustration shows clearly that this fault was here, and that it was sliced off by the Siebert fault and that, therefore, the West End MacNamara vein, marked here "vein," was in existence and had been faulted before the Siebert fault appeared in this country to slice off these little displacements which had earlier affected it. A similar phenomenon may be seen over in the portion of the MacNamara ground,—it is not numbered here—but in the drift or—on a drift on the vein of the three hundred MacNamara to the north, at its extremity, one may see there again the gouge of the vein, and one may see a vertical small displacement and see the fault that caused the displacement, and one may see the Siebert Fault slicing right through the fault and again the evidence is perfectly plain that we have a vein in existence anterior not only to the Siebert Fault but also to the deformation that preceeded the Siebert Fault;
1016 so that conditions of that kind it seems to me are positive evidence of the discreet separate character of the two things, the Siebert Fault and the vein, not only physically as indicated by the gouges, but as a matter of time; there is a large interval of time between the coming into being of the two fissures.

At this time a recess was declared until three forty five P. M. December 19th. 1914.

After Recess.

The Court: The Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

ANDREW C. LAWSON on the stand for further direct examination.

A. (con.). Before recess I was about to speak of the phenomenon observable in A raises as bearing on the relationship of the Siebert Fault to the West End MacNamara vein. In these raises, or rather at the foot of these raises, along the crest of the anticlinal roll, which is followed by the upper of the two stopes, that are here situated above the 400 level, we have a point at tangency between the Siebert Fault and the curve of the West End MacNamara vein, and the Siebert fault has been revealed and exposed in a number of raises known as the 2-A, 4-A, 5-A, 6-A and 7-A raises, proceeding upward on the course of the Siebert from the stope near the crest of the roll. Now,
1017 I have examined that particular situation with very great care, and have found the usual evidences of the distinct character of the fault and the vein. In these raises we find exemplifications of that particular development of quartz which belongs to the stringer zone above the main body of quartz of the vein, and the fault slices through these stringers, some of them almost transversely some of them obliquely and a few of them at a low angle, but in every case is a slice through the country including the stringers; there is, moreover, no mineralization on the fault itself, there is no appearance of quartz, development, parallel and coincident with the course of the fault's gouge; we have at the head of the A-raise,—the 5-A raise. we have a larger mass of quartz at a distance of about fifteen feet down the raise from its face—we have a larger body of quartz, but that is quite clearly, I would say larger usually—quite clearly sliced off by the fault. Not only is the distinctness of the fault from the stringers as well as from the vein shown by these slicings through, and by the usual phenomena of the slickened sides, and the abrasions and termination of gouge upon the stringers themselves, but as we go down below the bottom of those raises, on raises that have been driven on the northerly limb of the fold, on the northern side of the anticlinal axis, we find that the Siebert Fault has actually sliced off a portion of the vein. We can see clearly that in the stope itself, and in the raises 496 and 494, that the Siebert Fault is a little more than tangent-al, that it has sliced off a little bit of the top of the vein, and that phenomenon is per-
1018 fectly apparent and to illustrate it I would like to make another sketch.

Mr. Lindley: Mark that "Lawson-6" Professor.

A. (Indicating.) I will use a red line for the trace of the Siebert Fault, on the plane of this section, this is through the 5-A Raise, and the configuration of the raise is something as I shall attempt to sketch it—in black lines.

Now about here there are some timbers standing, and in here there is a well defined line in the quartz, about here, hard wall in the quartz itself, so I had better use another color for that; and above that there is a body of quartz two feet thick which extends up into the raise, and the quartz extends into an overhang here, resting against this pillar; there is a body of quartz something in that fashion, and I shall color the quartz with the yellow where it is still unstoped. Now, over here we have about two feet of quartz in this position; on the head of the raise that goes down, I think that it is the 496 raise, we have about two feet of quartz there, and that two feet of quartz can be followed down the raise about eighteen feet, and at a distance of eighteen feet from the stope, it is sliced off. It is a little in here more, and then as you go down, further down on the side where the raise is steeper, down in this direction, the quartz appears again in a position like this. I am not very skillful at sketching but this distance here should be something like twenty-five feet, so that this quartz here on the side of the drift in place, this quartz here in place, and of course there was quartz above the dotted line, the dotted yellow line which I indicate, represents the bottom of the quartz in the stope, and as it was stoped out down on the south
1019 side, so that we have clearly displayed the fact that the Siebert Fault which is followed up the 5-A raise at an angle of about twenty-five or twenty-six degrees, by reason of the fact that it is something oblique to the dip and therefore flatter than the actual dip, we have an exemplification of the fact that this Siebert Fault not only transverses and slices through the various stringers, as seen on the walls of this 5-A raise, actually slices off a portion of the crest of the main vein, and that quartz nevertheless is perfectly continuous over into the stope,—taking the stope for evidence of its former existence we have continuity of quartz over the roll and for a distance of eighteen feet down on the northerly slope of the anticline, or the northerly dip, and then at an interval of twenty-five feet, when the raise becomes steeper, we have—that red line represents the way in which the Siebert Fault slices off a portion of the curve of this anticlinal roll, but leaves the vein intact below that, and traceable continuously down to a point eighteen feet down on the northerly dip, and a little below that we have the quartz appearing strong on the steeper portion of the raise 496, and being continuous from there on down to the 400 level.

Now, in the 7-A raise we have a similar phenomenon where the slicing is not quite so complete, and I will have to show that. The inference that I draw from the phenomenon I may say is again clearly that the Siebert Fault is a later thing than the West End-MacNamara vein, that it not only slices through the accompanying stringer zone but cuts through a portion of the vein itself.

Now, the 7-A raise which is further up this stope, near its
1020 top we have a similar appearance, or at least analogous appearance. I will try and draw it a little more clearly.

Q. Lawson 7.

A. Lawson 7. (Indicating.)

Of course at best it is only a sketch, and we have here a raise go-

ing up to the 7-A raise and a regular roof, and over here there is a little drift that goes in at the extreme top of the stope, and down here it goes on into the 494 raise; in the 494 raise there are two upraises situated in this fashion, and in general relation to one another, it would be so—(indicating). Now, down here, of course, we have the top of the stopes on the south limb of the anticlinal fold on the left hand here, and we have a curve of this kind on the floor of the stope, and then when we reach this point we begin to descend on the 494 raise; now the quartz can be seen, I can indicate—the quartz can be seen as the yellow color represents and one can see it as it passes over on a distinct curve immediately in front of this little short drift, that is at the head of the stope; one can see the quartz distinctly passing into the raise with a flatter curve than the raise itself and be chiseled off like that, and it looks as though the quartz disappeared here and there is evidence,—I will have to bring this a little lower down here in order to make the diagram correct,—in here we find quartz and there may — a few, a very few indeed between the chiseled edge of the quartz here where it is shaved off by the fault, which may be indicated in the red color. The fault goes on through this portion of the roof here, through here, and goes down in this fashion, and

1021 I should have my yellow color of course it I will have to change that. The fact that I desire to make is that the evidence is clear that this fault, the Siebert Fault indicated by the red line again, in another section, approximately parallel with the 5-A section,—does exactly the same thing, namely, slices off a portion, and but a very small portion indeed of the West End-MacNamara vein, on its northerly dip, and that after you pass,—it is not clear that it is all gone there; it may go into the roof there and may go in here, but there is an interval here of a very few feet, not more than ten feet, where you cannot see the quartz,—you leave the quartz here and you have to pass through an interval of ten feet or so before you see the quartz, and then you see it again in this raise, and from here down you get plenty of quartz continuing on down to the fourth level.

Not only that, but somewhere in here, in the bottom of this raise, there is a cross cut runs in here, and this cross cut going in here is all in quartz, and goes into the lower stope. This is the upper stope and there is another stope in here, and this quartz that is down in this portion of the raise is continuous in here, and connects immediately and directly without any break whatsoever with the main body of the quartz in this first intermediate stope above the four level.

Q. Can you cut down the line of that lower stope there?

A. I can do that. It is entirely from memory of course. There is the general configuration of the stope below, it is rather flat and that is all stoped ground, and this is all stoped ground, all part of the same vein,—is valuable rock and in between is a mass of tall stringers running through the trachyte, and that shows clearly that there

1022 is a perfect continuity with the vein on its northern dip, with the vein certainly in the lower stopes, and bar-ing a slicing off of small portions, with the vein in the upper stopes, or upper intermediate curving over on the southerly dip; now that is perfectly

clear, nothing obscure about it, and we have an exemplification here also perfectly clear, that the Siebert fault is a later thing that slices through, and in other places scarcely reaches the vein; and the region over the vein in proximity to the fault is limited, a limited area; it is not the whole covered by this model, it is only a portion extending from the vicinity of the McQuillan shaft over to the region that may be said to — short of the cross cut, extending between the MacNamara shaft and the West End shaft, particularly of course, in the lower lefel. Now, in this region not only do we have these clear evidences of the fact of the Siebert fault slicing through the stringer zone, and through the vein itself to the slight extent that I indicate, and thus showing its later age, but when we follow or try to follow the relationship of the Siebert fault and the vein, we fund that the two separate and depart from one another. We find that the vein takes one course and the fault another; for example, down here at the nose or toe of the anticlinal fold on the 400 level, as has been indicated already in the testimony the West End MacNamara vein can be followed on a contour around the nose of the anticlinal fold; there is no break practically on that tracing, so that not only can we follow the vein on its dip over the fold, but we can follow it around on a contour and show its perfect continuity, in the sense that there is no break in the level any more than there is over on the
1023 dip, and in taking that around the nose where it is intersected by the plane of the 400 level, we have to drop down ten or twelve feet to this intermediate level below here, because the openings on the 400 level itself do not reveal the complete continuity but there are intermediates immediately below the level which show that the quartz is completely continuous around the nose of this anticline; so, taking the exposures in the 400 level proper, and taking the exposures in the intermediate ten or twelve feet below we have a continuity of quartz without any break around the contour of that level, or a contour ten or twelve feet below that. Now in this very region where we have that curvature of the vein around the toe or nose of the anticline, we have an excellent exposure of the Siebert Fault, maintaining its regular course, going on in this direction towards the bottom of the 488 raise; that exposure of the fault is a continuous exposure, and it is an exposure of the fault where it goes out into the hanging wall of the vein, the vein being below it and not being in direct continuity with it as it is up here in these stopes that I have been discussing on Exhibit-7.

1024 Now, that departure of the vein on its strike—that departure of the fault on its strike and dip from the vein is, of course, another clear indication of the separateness of that feature from the vein; an indication of the independence of the fault from the vein, an indication that they are not genetically connected, an indication that the relationship is *as* accidnetal one in a large measure, although there may be a causal connection in this sense, that the existence of the vein in that region, determined, as discussed in my preliminary remarks, determined the position of the vein in that region.

Q. The vein or fault?

A. Determined the position of the fault in that region. Although there may be a causal relation, it is not in any sense a genetic connection in the sense that it had anything to do with the mineralization, or in any *any* way controlled the mineralization of the West End MacNamara vein.

Of course, that continuity which can be traced over the roll of the vein, over the anticlinal roll on the dip of the two limbs, and around on the contour in approximately the 400 level can also be shown to be continuous in some of these upper stopes. I say it is possible not only to follow the vein from the dip here and show it is continuous in the direction of the dip, but it — possible to follow the vein around the bottom of the stope in approximation of a contour and show that it is continuous, one identical thing, without break, just as we can down here on the 4 level.

Q. Will you take up raise 200 A, or raise A?

1025 A. In raise A we have another illustration of the departure of the Siebert fault from the vein.

Q. Have you seen that since that connection was made, Professor Lawson?

A. Yes, I saw it last night. And not only do we have an exposure of the Siebert fault as it leaves the vein in these A raises, but it continues through the A raise and through the connection between the A raise and this raise up to the 136 intermediate level.

Q. Is that raise 262? Is that marked 262?

A. The raise—I cannot see the number. Yes, to raise 262. There is a connection between the A raise and raise 262, and the Siebert fault which is so well exposed in the raise A is absolutely continuous through into the raise 262. And we have again an excellent indication and exemplification of the departure of the vein—of the departure of the Siebert fault from the vein, not only on its dip, but down at the bottom of the stope here we have a splendid exemplification of the departu-es of the fault from the vein on its strike.

In this lower portion of the stope there is a small drift, and in that drift one can see both the vein and the fault, and one can see the divergence of the two. It is possible to stand or sit right in the opening of the ground there and look at the two things without twisting the neck, and see the two things diverging, and the angle of divergence on the strike there is something in the neighborhood of 25 degrees. And it is noteworthy that if one gets beyond that point of divergence in this direction (indicating) there is nowhere in

1026 these stopes A further indications of the phenomena that usually characterizes the Siebert fault. Down in this region I have been previously speaking of, down in those intermediates and here we have the Siebert fault and the hanging wall of the vein close together, and in the same openings we can see the two things.

But after they depart or diverge from one another in this particular region here that is over in those workings, one sees no more of that characteristic gouge of the Siebert fault. You only have the hard, dry, silicified gouge characteristic of the hanging wall of the vein. And the reason for it is that the Siebert fault is off here somewhere

in the hanging, which is not revealed in the opening, it has departed from the course of the vein both on the strike and dip.

Another indication, of course, of the separate and distinct character of the two things.

Q. When you laid your hand over there and made this discussion with regard to the position of this hard gouge, and not seeing any appearance of the gouge on the fault planes, you had reference to the stoped area in the West End MacNamara?

A. Yes. I was referring to the stoped area——

Mr. Dickson:

(Q.) In the north dipping limb?

A. In the north dipping limb of the anticlinal fold of the vein in the MacNamara ground, toward its western part. In stopes marked 7 and 8 and 9 A.

There are many details about this. I have simply attempted to offer gener-l observations that I have made, and have not attempted to go into detail in my statement.

1027 I may go on to remark that this vein affords an illustration of those outcrops of the veins upon the old buried surface which has been revealed by the mining operations. Of course, one of the finest illustrations of that is perhaps on the 300 level west. And on this 300 level, as we pass along, we come to the end of the vein on that level and on that stoping. We not only find the end of the vein on the level, but we find the end of the vein or the top of the vein or the terminus of the vein up in the stopes. And we go up those stopes here, above the level and where the stoping stopped, it stopped because the vein ended on its upward course. That is the end of the vein going upward in the stopes, and it is covered by this material that we call the Fraction dacite breccia which is, geologically, a volcanic fragmental rock that was thrown out by explosion and covered the old surface, and down here on the level one can see the amount of relief that existed in that surface, because it is clear from the exposure on the side of the drift that the vein stood up to a heighth of several feet above the level, and that to a certain extent, just as is true in many exposures of veins on hillsides, on account of the dip of the vein, the vein was overhanging somewhat, and you can see the overhang of the vein as it appeared at the old surface on this 300 level at this place at the end of the No. 4 stope.

Now, of course, going up the 262 raise we come to a position directly above the top of the stopes, and right im-ediately above these stopes we pass through a continuous stretch of this Fraction dacite breccia, and that Fraction dacite breccia on the 136 level, or

1028 intermediate is continuous over the top of the 262 raise right to the Porcupine shaft, and the Porcupine shaft is in the Fraction dacite breccia from top to bottom. And we can see in this 172 level at the bottom of the shaft, we can see the fraction dacite breccia.

So that it is perfectly certain that here we have a terminal edge of the vein on its upward course, abutting upon the bottom of this fraction dacite breccia. The same thing may be seen farther out here on

the Ohio ground, but that Ohio working is apparently not on the map and I can simply state the fact that they are there just as clearly as elsewhere. We can see the abuttment of the vein on its upward course against the bottom of the fraction dacite breccia.

The same phenomena may be seen plainly on the extremity, the Western extremity of the West End Five level. There we have the end of the vein covered—the top of the vein covered by the fraction dacite breccia.

The same thing is true down on the six hundred, on the extremity of the six hundred level. We see the cut-off of the vein and the abuttment of its old outcrop into and upon the fraction dacite breccia.

So that there is not the slightest doubt of the ending of the vein, and that that ending was an exposure at a surface under the weather, under the atmosphere is, in my mind, unquestionable. You have the phenomena of oxidation which has been alluded to, and you have the phenomena of leaching. I have two samples here that I might refer to briefly as illustrating that fact. Here is a piece of
1029 rock taken from the apex on the three hundred West End level?

Q. Mark that.

A. It shows the characteristic phenomena of gossan.

Q. Mark that Lawson 8.

Mr. Dickson: It is pretty hard to mark it.

The Court: Well, indicate it. We will have a paster put on it later.

The Witness: No. 8. That specimen shows the phenomena of dissolution, the removal of material by the action of water, such as the appearance—the same appearance exactly as one sees on surface of exposures of quartz where the quartz is not perhaps principally homogeneous, where there are other materials with it. The process of oxidation of other minerals disseminated through the quartz now appear in the form of limonite. Various characters of the gosson.

In another specimen from the same neighborhood, while we do not see any staining in this specimen, which I may mark "L 9," it shows another phenomena, that it is characteristic of the exposures or veins at outcrops, namely the leaching of certain materials out of it, so that it has a honeycombed appearance.

I had not seen this honeycombed appearance anywhere in the mine, except in the vicinity of the outcrop. It may extend down from the outcrop some considerable distance, but it is a phenomenon that I regard as indicative of a former exposure of the vein to the weather, and the quartz is seen not to be homogeneous; there is little soft particles in it, and these apparently are dissolved out or washed out and leave these caverns or cavities throughout the rock.
1030 That honeycombed appearance is an extremely common appearance in the gossan, and it is not necessary that we should have the red stain commonly present to demonstrate that fact. There are many characteristics besides the red stain, such as this honeycombed appearance, *tho* indicate the same thing.

Judge, I do not know whether I have answered your question or not, but I have done the best I could.

Q. I think you have come pretty near it. Have you any suggestions to make with regard to the shape or form of this fault, and its possible origin and direction.

A. The Siebert fault?

Q. Yes sir.

A. The Siebert fault is rather a flat fault. Its dip on the A raises here above the second intermediate on the 4, the dip is in the neighborhood of 30 degrees, probably slightly less than 30 degrees. Of course, it is a little more than the angle of the raises themselves. And that continues down to the 400, and the exposure here, and the exposure in the MacNamara ground farther off to the north here, and then the exposure in thw 500 Tonopah Mining ground, these indicate that as the fault comes northerly, it has a pretty flat dip, and in the Tonopah mining ground one can see the fault coming into the drift over the roof and curving concave upwards within the heighth of the drift and going off again into the roof of the drift; indicating that there is a very shallow, saucer shaped depression in the dip.

Now, in some of the other levels of the MacNamara up in this region in the neighborhood of stope 13, and in that vicinity,
1031 one can see the Siebert fault splendidly exposed in the roof of these flat stopes. And we can see also the departure of the vein from the fault in that same region. But I refer to these stopes because in the roof of them you can see—above the vein you can see the undulating rolling character of the Siebert Fault, and as you can see it down here on the Tonopah Mining Company's level, so that while we have these exposures we cannot resist the conclusion that the Siebert Fault, has, on the whole, an irregular and rather undulating fault plane. It is not a thing that you can predict to be found in any one particular place along way off by measureing the dip and say that five hundred feet away you will come to it at a certain place. It has an uncertain roll to it and that is, I think, the general characterization of it.

The other characterization that I would refer to is the absence of the mineralization, the softness of the gouge, which I have already referred to.

There is another characteristic which perhaps is worthy mentioning, the Siebert Fault does not, however, as far as I have been able to observe have the same kind of stringer zone connected with it.

Mr. Dickson:

Q. The same kind of what?

A. Stringer zone. Perhaps I should not use the word stringer. I want to say the same accompaniment of the same kind of secondary fissures that would *be* become stringers if they are mineralized.

I have already described the stringer- that are associated
1032 with the vein both above and below it, and the ground in the immediate vicinity of the Siebert Fault, when it is affected by openings not immediately along the plane here affected by a curved

and sub-parallel streaks or fissures, that are not like the breaks that occur in brittle rocks. It is more like the break that occurs in rocks that are somewhat dead or unelastic where the fissures that occur associated with the West End-MacNamara vein rise to stringers by mineralization, and those fissures in that stringer zone are the kind of openings that one would expect in highly elastic brittle rocks, so that I find there is a difference in that respect between the Siebert Fault and the vein, as well as the other distinctions that I have drawn attention to.

Mr. Lindley: I think that is all, professor Lawson.

Cross-examination.

Mr. Dickson:

Q. Professor, you agree with the witnesses who have preceeded you that the Siebert Fault is post-mineral, had nothing to do with the deposition of any of the minerals, in this vein, or any of its branches?

A. I do.

Q. What part does the Siebert Fault play in enabling you to reach a conclusion as to whether there is one vein here with an anticlinal fold, or two separate veins, one dipping to the north and one to the south. Has it any bearing upon that question?

A. Yes.

Q. What is it?

1033 A. I find no abuttment whatsoever *of* the south dipping limb of the anticlinal vein upon the Siebert Fault, except in so far as I have already indicated in such sections as 5-A and 7-A raises. There you have a partial slicing off of the upper part of the vein.

Q. Of the north dipping branch?

A. Well, it is the vein,——

Q. North dipping limb?

A. It is the vein as a whole is sliced off. A portion of the top of the curve is gone, and I find no abuttment or end or terminus of any kind of a south dipping vein against that fault. And to that extent the Siebert Fault has a bearing on that question.

Q. Look at the model for a moment: If the Siebert Fault is encountered in this raise A, a series of raises, professor, and the other places you have indicated you would not expect that to become tangent to the south dipping limb of your anticlinal fold at all, would you? It would be tangent to, and would touch only the north dip?

A. It might be tangent to the very curve.

Q. And it is represented here as being tangent to the very curve in some places?

A. Yes.

Q. Now, that being so, what part does the Siebert Fault play in bringing you to a conclusion that there is not one vein here—that there are not two veins here, one with a northerly dip and the other a southerly dip, but that there is one vein.

Mr. Lindley: I suppose, Mr. Dickson, you will appreciate that the development of the Siebert Fault was necessary in order to
1034 explain the phenomena in the A raises?

Mr. Dickson: The real dispute here is whether there is one or two veins. There has been much time and a very interesting discussion which has been entertaining to all of us on this Siebert Fault. I want to see what part it plays. It had nothing to do with the mineralization, if it has nothing to do with determining whether there is one vein or two veins, I want to know it that is all.

A. I would like to answer that question in this way, Judge Dickson: I would like to say that in so far as these raises follow up on the Siebert Fault, they do not follow up on any northerly dipping vein.

Mr. Dickson: That is all. I will take it up Monday Morning.

The Court: This case is continued until Monday morning at ten o'clock.

1035 22.

December 21st, 1914—Ten o'clock a. m.

The Court: The Jim Butler Tonopah Mining Company, vs. the West End Consolidated Mining Company.

Mr. Lindley: By the courtesy of counsel I desire to ask Mr. Lawson two or three questions which I overlooked on Direct Examination.

Testimony of ANDREW C. LAWSON, who being recalled as a witness on behalf of the Plaintiff, testified as follows, to wit:

Direct examination.

Mr. Lindley:

Q. Mr. Lawson, with reference to a certain vertical cracks that is said to exist in this vein in the neighborhood of the crest of the anticline,—did you observe any phenomenon of that kind underground?

A. Yes.

Q. Will you explain what those cracks were, how they were formed and what effect they have on the vein?

A. They are transverse structures in the vein, developed subsequently to its formation by stresses that have effected the vein; they are not original structures; they are structures that may be said to be superimposed upon the vein after its completion; they are not
1036 original structures; they are sometimes perfectly normal to the vein, and at other times make a considerable angle with it, but in general may be described as transverse secondary structures or cracks. Some of these cracks are very noticeable in the vicinity of the Siebert Fault, and it is very probable that they have been developed by the stresses generated at the time of the Siebert Fault.

Q. With reference to the vein itself, in all its parts, including the north and south legs, and the roll over on the anticline, what have

you to say as to whether or no, this entire vein with its north and south dipping legs and its anticline was formed by the same processes, at practically the same geological period of time, and whether or no it is identical throughout?

A. The observations that I have been able to make upon this vein, show clearly to my mind that it is a single vein, continuous and unbroken and I have been unable to find anywhere any evidence of a break, which could be regarded as in any way separating the vein into two distinct parts.

Mr. Lindley: That is all.

Cross-examination.

Mr. Dickson:

Q. Professor Lawson, I shall repeat the question in a somewhat modified form propounded to you just before Court adjourned Saturday evening,—and I will ask you what light, if any the presence of the Siebert Fault throws upon the question, or sheds upon the questions, as to whether we have but one vein here, namely your anticlinal vein, or two veins, one having a northerly and the other a southerly dip?

1037 A. I have understood that in the contention that there were two veins, that the northerly dipping vein was followed up in the A-Raises; the recognition of the relationship between the Siebert Fault and the West End-MacNamara Vein, makes it clear that those raises do not follow up on any northerly dipping vein, but that they follow up upon the Siebert Fault, and in that respect, in so far as those raises may be considered to be evidence of a northerly dipping vein, the Siebert Fault occupying the position in those raises that it does, indicates that there is no northerly dipping vein, other than the northerly dipping limb of the single West End-MacNamara vein.

Q. Any other light shed upon this issue by the presence of the Siebert Fault?

A. Well, there is this light that in the study of the ground we have evidence of only two important features, one of them being the West End-MacNamara vein, and the other being the Siebert Fault, and that when we eliminate the Siebert Fault from that category it leaves only the West End-MacNamara vein.

Q. Have you stated all the light that is shed upon the question, as to whether we have but one vein or two veins, by the presence of the Siebert Fault, or, as you have found?

A. I am not aware that I have stated all the light that might be shed upon that question, but it seems to me that my answer to your question thus far throws a sufficient light upon the question to settle it in my mind, that there is one vein and one Siebert Fault, and that the Siebert Fault as followed in those raises is not a vein distinct from the northerly dipping limb of the West End-MacNamara vein.

1038 Q. Well, my question is whether you can suggest to the Court any other fact referable to the Siebert fault that

throws any light on the question as to whether we have one or two veins, or whether you have stated all that occurs to you to suggest?

A. Well, of course, there would be considerable light thrown on the question if we were to go over the details of the evidence again. Say that the relationship of the Siebert fault to the northerly limb of the West End MacNamara vein at those places where we can see the departure of the Siebert fault from the vein indicates that we have two separate things. I would say that in so far as we can, by an accumulation of evidence certainly make clear that the Siebert fault is separate, distinct, physically and in time from the West End MacNamara vein, to that extent it throws light upon the question as to whether there is one or two veins.

Q. Well, now, let us see, we will assume—we will not dispute that wherever you have found, been able to identify the Siebert fault, it was later in origin than the formation of this vein, and the completion of the mineralization in the vein. I understand that it nowhere faults the vein except, as you say, in those raises it sliced through and cut off a part of the top in places?

A. Yes sir.

Q. It did not fault and displace the vein anywhere?

A. No sir.

Q. The fact that it is separate, formed at a later period than the formation of the vein, what light does that shed upon the question as to whether you have but one vein here and the anticlinal
1039 fold, or two veins, one having a northerly and the other a southerly dip? This later fissure cutting through the country, what light does it shed upon that issue?

Mr. Lindley: On the genesis of the original vein?

Mr. Dickson: I mean just what I say, Mr. Lindley, what light does it shed upon the question whether we have but one vein here to deal with, or two?

A. Well, of course the answer to that question must be made in the light of what has been contended to be the second vein. And I understand that it is claimed that the A raises run up upon a northerly dipping vein, distinct from the southerly dipping vein. Now, in so far as that fact is brought out, that the A raise does not follow a northerly dipping vein but follows a fault, namely, the Siebert fault, which is tangential to the vein there, it follows clearly that there is no second vein there; that what has been claimed to be the vein is only a later fault.

Q. I think you have already called attention to that.

A. I wanted to make clear that the answer to the question could only be made from a consideration of what was intended to be the second vein, distinct from the West End MacNamara vein. I do not know of any other vein, and I can only answer the question in relation to what is pointed out to me as a vein, and the only thing that I know of that is claimed to be the second vein is this thing that is followed on the A raises, and those are clearly following not the vein, but a fault which slices through the stringer zone of

the vein, and to a slight extent slices through the roll of the vein itself.

1040 Q. Now, if you have finished, I will proceed. Have you anything further you desire to say on that?

A. I think I have answered the question.

Q. The ore and quartz, however small or great it may be, which is found in the 488 raise and the A series of raises, is not at all referable to the Siebert fault, is it, any part of it?

A. The quartz that occurs in those raises is almost wholly, I would not like to be absolutely exclusive there; I would not desire to exclude the possibility of some slight mineralization along the Siebert fault, but as far as my observation goes, the quartz that I have seen in these raises I could say to the extent of over 95 per cent, had nothing to do in genesis with the fault. That it was there before the Siebert fault came into existence. There may be possibly some slight sili-fication, very slight, on the Siebert fault.

Q. Well, if there is any mineralization or sili-fication found there, that is referable to the Siebert fault, it would be negligible, wouldn't it?

A. I should say so.

Q. And as I understand your testimony in direct, the probabilities are but for the Siebert fault, the ore or quartz found in the 4 A raise and the 5 A raise and the other A raises would have been found extending up even further than it does now, or further than it has been followed yet?

A. That is quite possible, except that the——

Q. You spoke of some place where it was cut off by the Siebert fault near the top, at some one or more places?

1041 A. Yes, the stringers are cut off.

Q. It follows, of course, if it had not been cut off, it would have gone up further, if the Siebert fault had not come in there and cut it off?

A. It is very likely so.

Q. Now, those stringers, if you choose so to characterize them, the bodies of quartz, as I claim, found in the 4 A and 5 A and other A raises go up on a dip or inclination conformable to the dip of the North dipping limb of the vein down below the bottom of the raises, do they not?

A. No sir, they do not.

Q. Apparently they do, as you look at it in the ground, do they not?

A. No, I have not seen that appearance.

Q. Just step to the Defendant's model, Exhibit A, for a moment: take the 488 raise, the 2 A, the 4 A, the 5 A, 6 A, 7 A and 262, I think——

A. 461.

Q. 461. If the position, the angle of inclination of those raises is correctly represented on that model in connection with the ore found in the north dipping vein, it would seem to go—they would seem to go up substantially on the same angle of dip, wouldn't they?

A. You wish me to testify as to the appearance——

Q. Just answer the question yes or no, and then give any explanation you please.

A. I wish to understand the question.

Q. Just read the question, please.

(The reporter read the question.)

A. I can not answer yes to that question because those raises that you mention, 461 and 2 A and 4 A and 5 A and 6 A
1042 and 7 A are shown to be all quartz, and there is no indication whatsoever in the representation of that quartz in those models as to the strike or dip of the quartz. So that I can not testify that the quartz follows these raises.

Q. Well, assume for the present that the quartz found in the 4 A raise and the 5 A raise does pursue the course or angle upward of the raises themselves; then, that it would indicate that it went up upon the same angle of dip as the hanging wall of the vein at the bottom?

A. On that assumption, of course, the answer is obvious, they do. I would like to explain that I think the assumption is not founded well in fact.

Q. All right, go on with your explanation.

A. That is all I have to explain. That is all that I desire to say.

Q. Do I understand you to say that if, in your opinion, the ordinary intelligent miner and observer should be taken to the foot of those raises—I do not wish to go over with all of them, we will say 4 A and 5 A—and saw the angle of the inclination of the northerly dipping ore body at the bottom of the raises, observed that and then followed up 4 A, the quartz found in 4 A and 5 A raises that he would observe that there was a difference in the angle of inclination between the stope at the bottom, the north dipping portion of the stope at the bottom, and the quartz found in those two raises?

1043 A. Yes, I should think that an intelligent observer in making observations at that point would be able to see that the quartz in the raises is in a part, at least is not a continuous vein following up the raise—is an aggregation of stringers of various orientation.

Q. Are you familiar with the appearance of the Quartz in the 4-A raise?

A. Yes, I have seen it.

Q. What are its dimensions?

A. Well——

Q. Taking the main body of the quartz from the bottom up, before there is any break in it,—quartz in place?

A. Well, I would not be quite clear in my memory as to the exact dimensions—I should say that there might possible be bodies of quartz there that would measure possibly two feet across.

Q. I am speaking of that quartz that strikes—found at the bottom of the raises and so far as it goes up without any break or interruption,—you say bodies of quartz; I am calling your *your* atten-

tion to the one disclosure of quartz, namely that found in the bottom of the raise 4-A, for instance, on up to the place where we come, if we do come to any interruption, in its upward course?

A. Well, in that particular raise there is perhaps a better showing of quartz there, than in some of the other raises and when you follow,——

Q. Hold on Professor, keep down to the one raise that I am asking you about.

A. The 4-A?

Q. The 4-A.

A. Well, I was proceeding to say that the quartz in that particular raise is perhaps a better showing of quartz than those
1044 in some of the others,—but when you examine the quartz as it comes up against the Siebert Fault, in the roof of the raise it is clear that the quartz was there first, that it had been sliced off by the Siebert Fault, and that you can see the ordinary phenomena that I have referred to indicative of that fact.

Q. Well, take your seat Professor. I wish that you would observe a little more closely the question.

A. I will try to do so.

Q. Please read the question?

(Question read.) The only object that I have in making that suggestion is that it will save time.

A. I should say that, speaking from memory, that the quartz there might have a thickness from two to three feet in the lower part of the raise, and vary somewhat and finally obtain a feather edge at the top.

Q. Confining your attention again Professor to that question of the quartz found in that raise from its bottom upward, until we come to any interruption, if there be any in it, what is the angle of dip of that body of quartz?

A. I should say that it was an angle of dip that was somewhat steeper than the angle of inclination of the raise itself.

Q. Well, about what angle of dip?

A. The raise comes up probably at an angle of about twenty five and the particular body of quartz there has an angle, I suppose, over thirty.

Q. And what is the direction of that quartz in its downward course?

A. The direction,—it is dipping northerly.

1045 Q. How does it come to correspond in direction with the direction of the downward course of the north dipping limb of this vein in that immediate vicinity? I mean the immediate vicinity of Raise, 4-A?

A. It is dipping in such a way as to,—if pursued downward on its dip would impinge upon the south dipping limb of the vein.

Q. You mean the north dipping limb?

A. I mean the south dipping.

Q. Don't understand you. Just point out what you mean.

A. Well, I say that if this body of quartz——

Q. In 4-A?

A. In 4-A Raise were pursued downward on its dip it would impinge upon the southerly dipping limb of the West End-McNamara vein.

Q. It would impinge about on the crest of the roll, wouldn't it?

A. No, it would impinge on the southerly limb of the roll.

Q. Come to Defendant's model, Exhibit-A, and see if the workings there of the 4-A Raise, and the ore found at the bottom of it is correctly represented, would you give the same answer? I will change the question. According to the representation of the 4-A Raise of Defendant's model-A, and of the yellow stoping at the bottom of Four-A Raise and the quartz in it as it follows down would not impinge on the south dipping vein, but would come into the north dipping vein,—wouldn't it?

A. No. On the representation of this model the quartz in this 4-A raise distinctly does impinge on the southerly limb at the bottom of the raise; there is the breadth of the raise for four or five feet, and the color impinges distinctly upon the southerly limb of the fault.

Q. Almost the entire dimensions of the bottom of the winze, as here represented, as here represented as being in the north
1046 dipping ore body,—isn't that true?

A. I did not say so. I would say distinctly that the ore or whatever quartz is in that 4-A raise, if pursued down on the dip at an angle somewhat steeper than the raise must necessarily impinge on the southerly limb of that fold.

Q. I say that if you followed down that quartz to the bottom of the raise, you would come into a stope which has a northerly dip?

A. If the representation of the fact is corrected upon this model, the whole of this raise is quartz, and the quartz followed down here in that raise does, as a matter of fact impinge, and anybody can see it there, impinge upon the surface of that quartz on the southerly side of the crest.

Q. Entirely, or upon the crest?

A. I should say, as nearly as I can judge that it impinges entirely upon the southerly side of the crest line.

Q. Then that model Defendant's Exhibit-A, in that respect must be misleading?

A. I cannot help that.

Q. Well, I say, that model Defendant's Exhibit-A, in that respect must be misleading?

A. Misleading in what?

Q. In respect to the answer that you have just given? If the quartz followed up from the bottom of that raise, 4-A, for the distance upward therefrom that it continues unbroken, is correctly shown, the inclination of it in this raise and the yellow stopeing at the bottom of the raise is correctly shown here, then that quartz which we followed down in the raise until we get to the bottom does not impinge wholly on the southern limb of the fold, but impinges almost entirely upon the northern limb of the fold, does it not?

1047 A. I did not quite catch the drift of that question. Will you please read it.

(Question read.)

A. My answer is no, decidedly no.

Q. That the model does not show that?

A. That the model does not show that.

Q. All right. Now, you have told us, told the Court, called the Court's attention to the light which this Siebert Fault, as found in the 488 and A-series of raises, throws upon the question as to whether we have one vein only to deal with or two veins, one with a southerly and the other with a northerly dip—I will ask you right there Professor, if the Siebert Fault was not there at all, would not you still claim that there was only one vein?

A. I certainly should.

Q. You certainly would. So that whether the Siebert Fault was there or not, in your judgment, there is but one vein?

A. Yes.

Q. What light then does the Siebert Fault throw upon the question of whether there is one or two?

Mr. Lindley: Now, — apprehend if your Honor please,—we have gone over that so often; it is obvious what that situation is.

Mr. Dickson: I don't know I have not been down there.

Mr. Lindley: I mean isn't it obvious from the testimony of the witness; that is a post mineral fault, and it has nothing to do with the formation of the vein, simply explains the situation as it is, and he has said that over and over again.

Mr. Dickson: Well, I haven't taken very long.

Mr. Lindley: I don't object if you want to do that Mr. Dickson, but you will always get to the same jumping off place.

1048 Mr. Dickson: The witness has testified in answer to my question, when asked what light the Siebert Fault shed upon the question, of whether we have only one vein or two veins, that the presence of the Siebert Fault as found in those A-series of raises,—and this last question that if the Siebert Fault was not there at all he would still be of the same opinion; that being so I want to know what additional light, in addition to what he has already said, can be attributed to the Siebert Fault upon that question?

1049 A. It has this bearing on the question——

Q. Anything in addition to what you have already said?

A. Well, if you ask me that question again I will answer it again that it has this bearing on the question: that it negatives any idea or notion that there is a northerly dipping vein followed up in the A raises. Now, that is the only intimation that I have that there could be any other vein. And the identification of the feature that is followed in those A raises as the Siebert fault throws out the possibility of any northerly dipping vein going up those raises, and to that extent it has a very distinct bearing upon the question as to whether there are two veins or not.

Q. That you have already stated.

A. Well, you asked me the question again.

Q. No, I asked you if there was anything in addition to what you had already said. Have you the notes of your examinations, Professor, made during the old MacNamara litigation?

A. I have some of them, sir.

Q. With you here?

A. No sir, they are at the hotel.

Q. Maybe we can get along without them. Would those notes show what works you visited during that examination?

A. They do, yes.

Q. Can you refer to the model, Plaintiff's exhibit 2, and indicated to the Court the most westerly working that you examined during the pendency of that litigation?

A. The most westerly workings?

1050 Q. Yes.

A. I am not clear on that point. I would say that since, of course, the examination was made in the year 1908, there has been a great deal of work done here and I am not quite sure how far out these drifts have been run. But I think that the MacNamara workings have been extended out about as far as the cross cut marked 3 McN. In that neighborhood, certainly, I would not be positive as to the point. I could identify it on the map that I used at that time, but I am not quite sure whether this stope here was driven at that time.

Q. That is No. 10 stope?

A. Number 10. I am not sure that had been driven at that time.

Q. Are you quite sure that Number 9 had been driven at that time?

A. That is my recollection, that the MacNamara mine had been driven out this far at that time (indicating).

Q. Now, going southerly from that, the most westerly working that you examined?

A. I remember distinctly that Porcupine shaft. I examined this level marked on the map 136 level of the Porcupine shaft. I went down the Porcupine shaft to the 172.

Q. Did you go out in that to its westerly terminus?

A. I am not quite clear in my recollection as to the westerly terminus of the 172. But I have a very distinct recollection of going down the Porcupine shaft from the level marked 136 to its bottom.

Q. And going out some distance?

A. Some distance. Not very much, perhaps. I am not

1051 sure, I don't recollect clearly about that.

Q. And where else?

A. In the MacNamara ground? Well, as I say, I think these stopes have largely been driven since.

Q. I wish you would look at your notes at noon.

A. I will do so.

Q. This 300 level which you point out west of the westerly terminus of the stope 9, you were in that?

A. Yes. I have a recollection of being about that far.

Q. Is that in the Fraction dacite breccia?

A. No.

Q. Does the westerly edge of any part of stope come in contact with the fraction dacite breccia?

A. No. Let us see the number, and how far it extends. I think not, no.

Q. Would your notes throw any light upon that?

A. I am afraid not. My notes would only throw light upon the extent of the fraction dacite breccia as it is revealed in the vicinity of the Porcupine shaft.

Q. Did you anywhere then find any portion or point in the vein butting up against or in contact with the fraction dacite breccia?

A. Well, I formed the opinion at that time that the only point on an apex anywhere on the ground that I became familiar with at that examination was below this level 136.

Q. The only what?

A. The only point on an apex that I could recognize at that time must be below this level where this vein that was shown here in those days in this stope here came up against the fraction dacite
1052 breccia.

Q. You did form that opinion?

A. Yes sir.

Q. Did you at that time form an opinion as to where the top or terminal edge of that vein was, what you claim to be the top or terminal edge of that vein was, what you claim to be the top or terminal edge of it?

A. I formed the opinion that at this place in this particular vicinity here below the 136 intermediate level, that there was a point on the upper terminal edge or apex of the vein, but the mine had not been opened up so as to give me any indication of the course of that apex.

Q. What have you at that point, fraction dacite breccia?

A. Fraction dacite breccia, yes.

Q. Is that the only point where you had it?

A. I think that is the only point at that time where I became familiar with the existence of the fraction dacite breccia on that ground.

Q. The workings shown near the westerly end on the south dipping limb in which we find the following markings, W. 664, the bottom of that winze now is in fraction dacite breccia?

A. No, the bottom of that winze is in quartz with a fault slicing through it at the bottom of the winze.

Q. If that were driven even a very short distance further down, don't you think it would come in contact with what you call the Fraction dacite breccia?

A. There is no evidence that it would. It might continue indefinitely in the quartz.

Q. Where do you find the top of the vein there, or do you find it?

1053 A. The top of the vein in that winze?

Q. Yes?

A. The top of the vein?

Q. The top or terminal edge of the vein?

A. I have not found the top or terminal edge of the vein in that winze.

Q. It must be very close to the bottom of that winze?

A. I judge that the situation there is that the fraction dacite breccia must be very close to the top of the vein and lying on it, but not intersecting it.

Q. Come to another place: what level——

A. That is the 6.

Q. The 600 level, near its westerly terminus and where we find 70-B.

A. Looks like 70-B, or 70-B B. 70-B, I suppose.

Mr. Uren: 708.

Mr. Dickson:

(Q.) 708. Do you find the top of your vein there?

A. Yes sir.

Q. At the point represented on this map where the red unites with the yellow?

A. Yes sir.

Q. There you have the top or terminal edge of the vein. How far horizontally, and in what direction is that point on the top or the terminal edge from the crest of your fold, and what is the angle of declination that you had to follow down the dip to the top of your vein at that point?

A. You want the distance?

Q. How far have you had to follow down in the downward course declination that you had to follow down the dip to the top

1054 of your vein?

A. From what point? Starting from what point, Judge?

Q. Starting from any point on the crest.

A. Of the roll.

Q. Nearly directly north of this point, where we have the top shown, where the red and the yellow come together, near the figures 708. Go up on the—I will put it this way; start from this point on the top of your vein where you have the figures 708, and go up on the local dip of the southerly dipping limb, from that point until you come to the crest of your fold and tell the Court how far you have had to follow down from the crest, and in what direction, to get to the top of your vein at that point?

A. The distance from the crest of the anticlinal roll to the point in the vicinity of 708 is in the neighborhood of a thousand feet.

Q. Taking the local dip of the north dipping limb there—the local dip of the south dipping limb between those points, what is it?

A. The local dip of the south dipping limb I presume you mean on the 600 level?

Q. What?

A. The dip on the 600 level?

Q. Can't you give us the local dip of the south dipping vein?

A. When you ask for the local dip you mean the dip at a point.

Q. From where you have the top of the vein or terminal edge of

the vein at 708 up to the point to which you measured and gave the distance of a thousand feet?

1055 A. That would not be a local dip.

Q. Has that south dipping vein any local dip in that vicinity?

A. It has a local dip at all points.

Q. Has it any local dip between these points that you have just measured and given the distance as a thousand feet or something more?

A. You can't say that it has a local dip in that direction because it has many local dips.

Q. So that between the points that you have taken, one where you have the point at the top of the vein at the figures 708, and the point on the crest which you measured to get the distance, the south dipping vein, has no local dip at all?

A. Not in the strict meaning of the term. You can think of a general dip, but as soon as you introduce the word local, or use the word dip unqualified, you mean an observation at a point. And the vein is so unequal in its course and so uneven that it has a great many local dips.

Q. All veins differ locally in dip and strike from the general dip and strike, do they not?

A. Yes, that is true very commonly that there is—the general dip is made up from the consideration of the many observations of the local dips at various points.

Q. Well, if the general dip is made up by many observations of the local dip, can't you give the local dip here between the two points referred to, Professor?

A. I have just stated that that is not consistent with the terminology.

1056 Q. What do you mean by the local dip?

A. I mean the observation for the dip at a point for a very limited region where it is uniform in that region.

Q. Then, I understand you, speaking of this south dipping limb of your vein following upward from where we have a point on its dip to the junction of the red and yellow colors near 708 to the crest, it has no local dip that you can get?

1057 A. My objection is chiefly to committing myself to a terminology that would not be correct. I have stated clearly what the meaning of the word- "local dip" to my mind is. You ask me to do something with those terms which is inconsistent with my definition of it.

Q. Has it or has it not any local dip between that point near 708 where you have the top or apex of the vein, and from there in any direction to the crest, has it any local dip?

A. Not in the definition of the term local dip which I have just given.

Q. Is there any dip?

A. It may be said to have a general dip?

Q. What is the direction of that dip?

A. It may be extremely difficult to determine. You see the plane

has a characteristic undulation, and it would be a difficult matter to do more than compile a great many observations for local dips, and try to arrive at an average on the dip. In a general way, however, one can say that the general dip of the vein, without specifying the degree is——

Mr. Lindley:

Q. You are speaking now of the south dipping limb?

A. The south dipping limb, yes, from the crest of the anticline down to the 600. Another difficulty appears here so that I do not think that I can get the dip, even in a general way down to the point that you have indicated on the 600 level, because the dip has a direction which goes out into space where there is no further vein, and I would not like to testify to the dip of the vein where there isn't any.

Mr. Lindley: Well in a general way. Can't you give the answer in a general way. You know what counsel wants.

1058 A. I can indicate the general dip down on the southerly limb if I am not pinned down to the point 708.

Q. What he wants is the direction, in a southerly direction, of that limb of the anticline, assumed as a distinct entity, in a general way. You do not want it in degrees do you, Mr. Dickson?

Mr. Dickson: Oh, no, just an approximation. I do not want him to take the time to figure it up definitely.

A. This is a matter of judgment, just using the eye to determine the direction of the dip on the model. The direction of the dip would be about twenty-five degrees.

Mr. Dickson:

Q. What?

A. About twenty-five degrees west of south, or east of south. Twenty-five degrees east of south.

Q. Twenty-five degrees west of north?

A. That would not be the direction of the dip. The dip would be down to the south.

Q. What?

A. Twenty-five degrees east of south.

Q. Well, as you follow it up on the dip, ascending on the dip, then it would be north twenty-five degrees west, of course?

A. Yes.

Q. Put up the Plaintiff's cross section will you please?

A. (Witness does so.)

Q. Do you agree with what is represented upon this section No. 1, marked "Finch-4" as to the position of the Siebert Fault shown as coming down the raise—what raise is that?

A. I will look at the section on the map to identify the section. That must be raise 537.

Q. What?

A. I presume that is raise 537, which is projected upon the section.

1059 Q. 537 is a vertical raise as shown upon the model?

A. Well, this is a vertical raise here. 537 is a vertical raise.

Mr. Lindley: The raise where they last struck the Siebert Fault is 533-A.

A. No, it is 537, Judge, that is the raise.

Mr. Dickson:

Q. And what raise is this (indicating)?

A. That is 533-A.

Q. Now, which of those is represented in the raise shown upon "Finch-4"?

A. This is the 537 Raise.

Q. 537?

A. Yes.

Q. This one going up vertically?

A. Yes.

Q. Now this one going up here——

A. I will identify that too. That is intended for the 488 raise, I presume.

Q. That is what I thought. Do you agree with the representation upon this "Finch-4," as to the position of the Siebert Fault in the 488 raise, going down that and then *fa*lttening out as you go north and passing above the 537 raise?

A. The 537 raise, yes.

Q. That accords with your observation?

A. Yes. The Siebert Fault is certainly apparent in the 488 raise and flattens off, and passes above the top of 537, as far as we know.

Q. How recently have you been in the 537 raise?

A. I was up at the top of 537 raise, I think it was about a week ago.

Q. Not since then?

A. I have not been up to the top since then.

1060 Q. Referring to the model for a moment, this 537 raise, which is shown on "Finch-4," section 1, is the raise which connects with what is more likely a drift than a raise, or winze, marked 569. That is the one?

A. Yes.

Q. Now suppose,—by the way you understand that the 537 and 533-A raises are being driven up by the defendant company at the request of the Plaintiff?

A. Yes.

Q. And they were driven up as you understood, at the request of the Plaintiff, with a view to encounter the Siebert Fault?

A. Yes, I understand that to be the intention.

Q. Now, assuming that this 537 raise has been extended up a distance of 60 feet or more above the 569 raise, and has yet, not encountered the Siebert Fault, or any other fault that could be identified as the Siebert Fault, what would — say then has become of your Siebert Fault?

A. I would say that it had probably manifested one of its irregularities or eccentricities.

Q. Or eccentricities?
A. Eccentricities or irregularities which is well known.
Q. You understood that the Siebert Fault has been encountered in the 533 Raise?
A. I know that it has.
Q. You know that it has.
—. ——.
Q. Just about where?
A. At a distance of seventy-six feet from the five hundred level.
Q. How near the top?
A. 76 feet up—at the top.
Q. How would you account for the fact that as encountered there, and it is driven up, driven up sixty-one feet above the 569 Raise, has not encountered it.
1061 A. I should account for it by saying that in all probability the Siebert Fault had taken a roll which it could easily do.

Mr. Lindley: How far up are you on that?
Mr. Dickson: Sixty some feet above the 569 raise, this morning.

Q. If it is encountered at the top of the 533-*A it is certain to be found at all in the 537 from there on up to the distance that I have specified, or it must have had a convulsion there.
A. It must have had.
Q. Turned a good many somersaults?
A. Oh, one would do it.
Mr. Lindley: Calling the attention to the fact—I have not explained to the Court,—this is for your information Mr. Dickson, I simply want to call attention to the fact that the model—there has been three additions made to that model, and one I think is the extension or upward extension of this 533-A, as exhibited in blue; that has been put on since they encountered the fault in that raise. May, I speak of the other one—the other things that have been put upon the model to which the court's attention has not been called.
The connection of the 200-A raise with the 262 at this point here. (Indicating.) The connection between A- and B stopes, the raise here, and the 533 A-raise which is up a distance of 76 feet, where it encountered the Siebert Fault, as testified to by both Mr. Searls—well, I shall call him back on that; Mr. Searls will be recalled upon that,—but that is the fact, Professor.
A. Yes, that is the fact.

Mr. Lindley: And there is one error in the model, that I would like to call attention to,—well, when I put Mr. Searls upon
1062 the stand I will do that.
Mr. Dickson: Well, I wish to recall Mr. Searls for another matter,——
Mr. Lindley: The 569 raise?
Mr. Dickson: Something in that vicinity.

Q. I will ask you to indicate on the map "Finch-4" section 1, where a point of the 537 raise, 61 feet above the 569 raise would fall, indicated on "Finch-4"?

A. At what point shall I begin the measurement in the 569 raise?
Q. In the 537.
A. There is a raise of ten or twelve or fifteen feet, that might be an extension of the raise at the 537.
Q. Take it at the middle and at either side of the 537 Raise, give me the three places.
A. I would like to know where the 61 feet is taken from.
Q. I will ask you to measure from the top of the 569 raise, and where it connects with the 537 raise, above at either side of the 537 raise and midway.
A. At the top of the connection of this winze with the 537 at that point?
Q. Yes.
A. You want me to measure on this map 61 feet?
Q. Yes.
A. It would be at about that point (indicating). Sixty one feet above the top as represented here.
Q. How is it indicated on there?
A. I have indicated it by a pencil mark drawn horizontally.
Q. Mark that a little heavier, and put an arrow pointing to it, with the first letter of your name on the shaft of the arrow. (Indicating.)
A. (Indicating.)
1063 Q. I must correct that question. 61 feet above the bottom of the 569.
A. I will measure out 61 feet, rubbing out the mark that I have already made.
Q. Yes.
A. (Indicating.)
Q. You have indicated that by a pencil line with an arrow pointing to the line, and the letter "L" at the end of the shaft of the arrow?
A. Yes.
Q. What cross cut is this running out here, through which or on which you have indicated it?
A. I presume that is the 400,—that is the 400 cross cut I presume, running out to point 418-A.
Q. It is the 400 West End so marked; the Siebert Fault is nowhere disclosed by that line of work in which you have placed the pencil mark, anywhere from one end to the other is it?
A. Not that I am aware of. There is a fault up at the end of the cross cut?
Q. The Siebert Fault?
A. I don't know whether that is the Siebert Fault or not,—out at the end of the 418-A.
Q. Have you examined it?
A. I have examined it in former times, not recently.
Q. Any gouge in it?
A. There is gouge in it, yes.
Q. Comparable to the Siebert Fault gouge?

A. Well, I judge that it is steeper than I would expect the Siebert Fault gouge to be.

Q. Do you think that is the Siebert Fault?

A. I do not so regard it.

Q. Have you any opinion about it being the Siebert Fault, or some other opinion?

A. Well, my opinion would be, of course, influenced by the
1064 development in the 537 Raise here?

Q. I am asking you if you have any opinion as to whether that fault is the Siebert Fault?

A. I have not hitherto thought of it as the Siebert Fault.

Q. You have not regarded it as the Siebert Fault, or you would not have acquies-ed in having that extended upward to find the Siebert Fault?

A. I have so testified and stated.

Q. Is that Siebert Fault encountered in the 569 raise?

A. The 569 Raise——

Q. That is this raise Professor, so-called raise, 569 Raise appears so marked here.

A. 569 raise, so marked here.

Well, there is a fault in the roof of the raise at a distance of about forty feet from the intersection of the raise with the 537 raise.

Q. Of the Siebert Fault?

A. It is a fault that has some of the characteristics of the Siebert Fault.

Q. In your opinion it is not the Siebert Fault?

A. I would not say that, I would have to plead ignorance as to whether it is or not.

Q. If you were inclined to the opinion that it was the Siebert Fault, you would not have directed or acquies-ed in the direction of having the 537 raise extended on upward, to find the Siebert Fault?

A. As to that point this acquies-ence in that work was a matter of exploration.

Q. A matter of exploration for what?

A. For all the facts that we could find.

1065 Q. For the Siebert Fault among others?

A. Yes, the fact remains that there is in the top of that winze, and followed——

Q. This winze?

A. This winze that goes towards the 569 raise.

Q. Connecting the 569 and the 537?

A. Yes; there is in the roof of that about forty feet south of 537 raise a fault filled with considerable gouge.

Q. Looks like the gouge of the Siebert Fault?

A. Might easily be; it is comparable to it, it is the same sort of thing.

Q. But evidently you did not recognize that, or regard that as the Siebert Fault, or you would not have acquies-ed in the request that the 537 raise be extended on upward above that to find the Siebert Fault?

A. No. It required further exploration to settle the question, and I think that the question is still unsettled.

Q. Is there difficulty in identifying the Siebert Fault, or is it readily identifiable where it is found?

A. Ordinarily it is not difficult to identify it.

Q. Have you ever observed or made an examination of what you called the Oddie rhyolite, Professor?

A. The Oddie rhyolite,-over here on Mount Oddie?

Q. Yes?

A. In years past I have seen it.

Q. Did you hear the testimony of Mr. Finch with respect to the Oddie rhyolite?

A. With respect to the Oddie rhyolite—if I did I don't remember.

Mr. Lindley: The Oddie rhyolite. Are you sure that Mr. Finch mentioned the Oddie rhyolite,—yes, he says that he did.

1066 Mr. Dickson: I will read what he says and ask the professor if he agrees with that. I will read you from the testimony of Mr. Finch in direct examination. Page- 542 and 543. "This Siebert fault as I understand you is the latest phenomena here, geologically speaking, that occurred in that section of the country; it was after the formation of the vein? A. Yes; it is later than anything else except possibly — thing up near the top of the McQuillan shaft, is a little Oddie rhyolite, so called; I assume that it is Oddie rhyolite because Mr. Spur states that it is; that may be later than the Siebert Fault, from the data which we have at hand."

Q. Have you made sufficient of an examination Professor, to bring you to any conclusion as to the relative age of the Oddie rhyolite?

A. I have never even considered that question, Judge.

Q. No, whether that was deposited before or afterward—after the volcanic eruption from which was poured out the Fraction dacite breccia, you have no opinion to offer?

A. No, I have no opinion to offer on that matter.

Q. Is this vein, or these veins here under investigation, a true fissure vein, or is the country rock largely, or to a very considerable extent, from the fissures replaced?

A. The country rock is to a very considerable extent replaced.

Q. At some considerable distance from the fissure?

A. Sometimes, yes.

Q. That of course—that fact would indicate and demonstrate that the rock itself was soluble rock, as well as fractured?

A. I would say that it was susceptible of solution itself in place, we would not call it soluble rock.

1067 Q. In order to replace the country rock the solutions which had that effect must have dissolved out particle by particle the country rock and replace it in the same way, particle by particle with the mineral, so it must have been soluble rock.

A. Yes, it must have been.

Q. And the replacement extended as far from the fissure as forty or fifty feet?

A. Well, it may have extended from the main fissure forty or

fifty feet, in some instances, but probably it did not extend far from the subsidiary fissures.

Q. What?

A. While it may have extended up forty or fifty feet from main fissure, it may have been attacked by water reaching it thr various subsidiary fissures, in the stringer zone.

Q. And it would depend upon two factors, the solubility of rock and the amount of shattering that the fissures would access to these solutions by replacing the country rock; that is t

A. Yes, that a rock soluble under certain conditions woul entirely insoluble under other condition-.

Q. Well, here it must have been quite soluble?

A. Under the temp-ature and pressure and so on, and the ch ical character of the waters, it must have been quite soluble course.

Q. It must have been quite soluble and the effect of these s tions was to replace the country rock.

Mr. Lindley: Well, according to the testimony of the wit there are other factors—that of temp-ature and pressure.

Q. Well, having replaced it to the extent it has from
1068 fissure, the rock which is replaced must have been q soluble?

A. I would say that it was soluble or susceptible of solution u the conditions which prevailed at that time and place. I wo not like to convey the idea that you could take a piece of rock and throw it into a pail of water and it would dissolve.

Q. Oh, no, I mean with the solutions attacking it, it would solve up?

A. Yes, sir.

Q. What in your opinion Professor, was the channel or *or* ch nels of solutions, if there was more than one, through which ascending solutions found their way and deposited their min and metallic contents and thereby built up the ore bodies mineralization found in these veins or this vein?

A. The main avenue of the percolation of the waters concer in the processes was, of course, the main fissure itself.

Q. Where is that?

A. The main fissure is indicated as to its position by the pre position of the vein.

Q. Do I understand you that the main fissure itself was a fis that came from the deep, and the south dipping member of anticline, and went up as a fissure, unbroken over the crest, then in its downward course to the northerly dipping vein?

A. You ask me if I consider that to be the course of moveme of the waters—I did not quite catch the question, I am sorry.

(Question read.)

A. I will answer that Judge with some qualification, I will swer that the fissure exists in the way that you have described now when you ask me whether the fissure came up from the dep

I am not allowed to answer that question, I don't know w

1069 you mean by the fissures coming up from the depths.

Q. I mean by the fissure coming up from the depths, the channel which the solutions followed up from the deep, along the fissure unbroken, along the ore, so far as developed in the south dipping limb of the fold, unbroken fissures themselves, upward unbroken over the crest of the fold, and then down again towards the deep, on the north dipping limb of the fold.

A. That was the course of the fissure on the line of section that you have indicated just now, but not necessarily the course of the movement of the waters which mineralized that fissure.

Q. Well, is there such a fissure having an anticlinal dip or fold generally throughout this mine?

A. There is a fissure which has become mineralized, and has that anticlinal configuration.

Q. And that fissure, in any subsidiary, more or less prior fracturing that may have occurred,—is it your opinion that the channel through which the ascending solution- follwed found their circulation——

A. I think that fissure was permeated by waters that brought into it the mineral matters which we find there, and that necessarily it was an avenue for the movement of the waters, but that is a very different thing from stating that the movement of the waters, had a particular course in the fissure.

Q. Oh, I don't care for that. That was the fissure that afforded the channel for the circulation?

A. Yes.

Q. Now, at the easteriy end of this mine as I understand, the enclosing rock, so far as the vein has been developed to
1070 the east, on the north dipping limb, I mean by including rocks the hanging and foot wall country of the north dipping limb, were the same as the hanging and foot wall rocks enclosing the south dipping limb?

A. Yes.

Q. No distinction that you could observe between the enclosing rocks here on this north dipping portion at the easterly end and the south dipping portion?

A. I do not know of any essential difference; there is a possibility of a difference where the down throw on the Siebert Fault may have brought—I don't say that it has, but it may have brought in this way andesite down against the vein; that is a possibility. But as far as I know, the hanging wall and footwall of the southerly dipping limb, is the same as the hanging wall and foot wall of the northerly dipping limb in the eastern portion of the mine.

Q. And throughout the mine, so far as developed,—is that true?

A. Yes, for particular sections.

Q. Each section taken by itself?

A. Each section taken by itself.

Q. The enclosing walls of the north dipping vein would be the same as the enclosing walls of the south dipping vein?

A. Yes, for the two limbs of the vein respectively.

Q. And in your opinion both limbs of the anticlinal vein, so called, were mineralized at the same time?

A. Yes, sir.

Q. And have you any opinion as to whether that mineralization is referable to solutions ascending from the same source, or were there two sources, one for the south dipping and another for the north dipping vein?

A. I have no reason to believe that there were two sources.

1071 Q. In your opinion there were not?

A. One source?

Q. One source?

A. Yes.

Q. In your sketches, Professor—"Lawson 5, 6, and 7"—in each instance as we face that section are we looking west?

1072 A. May I see the Sections?

Q. (Sections handed to the witness.)

A. In the sketch Lawson 7, we are looking west.

Q. What?

A. In the sketch marked Lawson 7, we are looking west.

Q. What about 6?

A. Similarly, we are looking west in 6.

Q. And in 4 and 5?

A. Section 5; in this section we are looking south.

Q. Looking south?

A. Yes.

Q. That is a northerly and southerly section?

A. That is an east and west section, looking south.

Q. All right. Four?

A. I will just glance at the map to get the exact location of that. That is practically looking south. May be a little east of south.

Q. Didn't you, professor, mark on this Section 4 one place as "Top of vein"?

A. I marked silicified gouge.

Q. You marked one place, I think, as top of the vein.

Mr. Evans: He was going to and did not do it.

Mr. Dickson:

(Q.) I will read you from your testimony on Saturday, Professor, briefly, with reference to your Section Lawson 4. This maybe will draw your attention, as you have the sketch before you. "Now, that is the appearance of the right hand side of the earlier fault as we look at it. On the other side of the fault we have another appearance. I will say that above the Siebert fault here we have the Mizpah trachyte which I will indicate by the

1073 letters M.-T. M.-T. stands for Mizpah trachyte, as the hanging wall of the Siebert fault. Along here for a distance of five feet we can see the top of the vein and it has this configuration, that is the top of the vein (indicating), and I will write on there, "Top of vein."

A. Well, if you will permit it, I will write it on now.

Q. Well, I understood from your testimony you had done it?

A. Well, I evidently wrote (silicified gouge). I will put "top of vein," so as to make it conform with what I stated.

Q. Now, does that represent the top of the vein?

A. It does, sir, for that distance of five feet.

Q. "I will indicate first that this top of the vein has a thickness varying from two to five inches."

A. That is the portion that I had marked "silicified gouge," has a thickness—you see, I indicated by a double line here the top of the face of the vein which I indicated as the silicified gouge."

Q. And which you referred to in your direct statement as top of the vein, and also marked it?

A. Yes.

Q. The top of the vein there is not as thick as the vein found in these raises, is it?

Mr. Lindley: The top of the vein, he says, he meant the silicified gouge.

A. The top of the vein does not mean by any means that that is all of the vein. That is simply an upper layer or top portion of the vein. The top.

Mr. Dickson:

(Q.) Is it the top layer?

1074 A. The top——

Q. Is it as you go upward the extreme top?

A. Well, the top of the vein there is used in the sense of the hanging wall portion of the vein. The upper part.

Q. Well, had you the top of the vein there, Professor?

A. If the word "top" has a technical sense, in the sense of an apex, I did not.

Q. Well, I do not mean—I am not trying to mislead you in that way. But do you have there locally the top of the vein?

A. Yes, I have the top of the vein in the sense that all the vein is below this line here. The vein is below that, and that is the top or upper part of the vein in that particular place.

Mr. Lindley:

(Q.) The hanging wall?

A. And the hanging wall of the vein is right there. And there is a great thickness, several feet of vein below that.

Mr. Dickson:

(Q.) Now, I will have you mark this, Professor, if you will, "LX I."

A. (Witness does so.) That might be mistaken for L 11. L X I.

Q. Is this portion of the sample of the rock on the face of which you have "L X I" gouge with quartz below it?

A. Holding it that way—I would like a little more light on the subject. Yes.

Q. Is that an undurated gouge, or is it soft gouge?

A. Well, it is dry. It is not very hardly indurated. It is dry, but it is not what I would call indurated.

Q. Quite hard?

A. No, it is not particularly hard. I can break it off with
1075 my finger nails and scratch it.

Q. I hand you another sample and will ask you to mark this "L X 2."

A. (Witness so marks same.)

Q. You have so marked it?

A. I have so marked it, "L X 2."

Q. What is the material upon which you have written "L X 2"; I mean that particular part of the sample is quartz, I take it?

A. That is quartz, yes.

Q. I call your attention to this dark colored streak at the top of the quartz on another face of this same sample, and ask you if that is sulphide ore?

A. I think it very probably is.

Q. You haven't any doubt about that, Professor?

A. I should think it would be an ore.

Q. Sulphide ore?

A. Well, there are various dark ores, you know. It might be some of these ores that are not pure sulphides but I would say that it was very likely an ore.

Q. Well, wouldn't you, in your opinion, say that that was sulphide ore, that streak?

A. Well, I should think it very probably has some sulphur in it, and therefore, in that sense, it is sulphide ore, but I would not exclude other things.

Q. Coming back to L X I, for a moment, do you regard the quartz in that specimen and the gouge to which you have referred to as being both vein material?

A. I should regard the gouge as very probably a later thing than the vein.

1076 Q. Where will you draw the distinction between the——

A. I would draw the distinction where the sharp demarkation is between the light gray color and the dark gray color.

Mr. Dickson: I believe that is all.

Redirect examination.

Mr. Lindley:

(Q.) Professor Lawson, I wish you would go to the 400 cross cut just a minute. Is the Siebert fault shown at any point in that level, or in the cross cut, or in the neighborhood of the cross cut?

A. The Siebert fault goes across the mouth of the cross cut.

Mr. Lindley: That is all, Professor.

Testimony of FRED SEARLS, JR., who, being recalled herein as a witness on behalf of the Plaintiff, testified as follows, to wit:

Direct examination.

Mr. Lindley:

(Q.) Mr. Searls, calling your attention to the raise 533 A: since you were on the stand, has that raise been extended?

A. It has been exrended vertically upward to its present height, which is 76 feet above the track of the 500 west end cross
1077 cut.

Q. What is disclosed in the top of that raise?

A. In the very top of the raise, the Siebert fault is disclosed with characteristic gouge, and also characteristic striations of about north, 70 east; a typical exposure.

Q. The other raise referred to, the 537 has not as yet encountered the fault?

A. I believe not.

Q. How long since you have seen the top of that raise?

A. Last Saturday.

Q. How high is the raise?

A. I understand that the present height of the raise is about 106 feet. At the time I was last in it, it was 97 feet.

Q. And it has not, as yet, encountered the fault?

A. It had not at the time I last saw it.

Mr. Lindley: Now, I have no further questions. If you want to take that other matter up with Mr. Uren.

Cross-examination.

Mr. Dickson:

(Q.) In the 533 A raise, you say you encountered the fault at the top of that raise?

A. Yes sir.

Q. Its present top?

A. Yes sir.

Q. Have you there encountered the cap rock?

A. I do not know. The back, the very top of the raise is still in fault material and its certain identification as to the char-
1078 acter of the rock in which the gouged material is is made a little uncertain.

Q. You cannot say whether it is cap rock or not?

A. I cannot.

Q. Where the Siebert fault is found?

A. I cannot. I would like to say further that this disclosure is practically exactly in line with the Siebert fault as portrayed upon the Section Searls 4.

Q. Just where you would expect it. Mr. Searls,—if Mr. Uren is not present, I won't wait for him. There is a piece of work here u-marked on the model Plaintiff's Exhibit 2 which I understand is the Butler working, or in Butler ground?

A. Yes sir.

Q. Do you know by whom it was done?

A. It was done by the West End Company, partially in the Tonopah Mining Company ground.

Q. Will you mark that in some way upon this model so the record will show to what we are pointing?

A. I will mark it C, for connection.

Q. What does it connect? Explain that, and then the record will be clear.

A. This little working marked C on Plaintiff's Model 2, exhibit 2, connects the Tonopah Mining stope 17 with the 569 raise.

Q. Now, I wish you would come for a moment *ot* the Defendant's model, Exhibit A, and point out the same piece of work and mark it C also.

A. (Witness does so.)

Q. Now, the westerly end, especially of what you have
1079 marked C, that piece of work does not occupy the same position in the models Defendant's A and Plaintiff's 2, does it?

A. It does not occupy the same relative position.

Q. How much lower is the top or crest of the end of that piece of work marked C in the Plaintiff's model 2 than is as represented in Defendant's model A?

A. I think about 10 or 12 feet.

Q. Which of these two models is correct in that regard?

A. Neither of them.

1080 Q. What is the error in the representation of this line of work in the Defendant's Model A?

A. Defendant's Model A represents that raise as coming into the 569 raise at a greater elevation relative to the 569 raise than it actually does come in as shown on the ground.

Q. How much?

A. About 2 feet, or 3 feet.

Q. Two feet. That is, the bottom of that piece of work that you have marked C, as shown on the Defendant's Model A, is about 2 feet higher than the fact is?

A. Both bottom and top.

Q. Of course, if the bottom is, the top would be too.

A. It could be distorted.

Q. And the bottom of that same piece of work, as shown on the Plaintiff's Model, Exhibit 2, is how much lower than the bottom as shown upon the Defendant's Exhibit A?

A. About 12 or 14 feet.

Q. About 14 feet?

A. Yes sir.

Q. Now, do you understand that this raise with which that working connects, namely, raise 589, isn't it?

A. 569.

Q. 569 on Defendant's Exhibit A, at the roof of that raise is about the hanging-wall of the south dipping limb of this anticlinal vein?

A. At the point of connection?

Q. Yes.

A. It is within the zone of the hanging-wall stringers, and is above

the hanging-wall of the main solid portion of the vein very slightly.

1081 Q. That is 569 is?

A. Yes sir, at that point.

Q. You do not know whether the material that came from that was sent to the mill, or not, all of that?

A. I do not, but I should think it would very likely be, because——

Q. Merchantable ore?

A. Yes sir; because the raise at that point contains a vein of quartz of about 3 to 4 feet and in portions of it 5 feet in width which shows sulphides.

Q. Now, in the top of the west end of the line of working which you have marked "C" on both models, is that not in ore where it is 14 feet higher than represented on your model?

A. It is in quartz which I think very likely might be ore.

Q. Commercial values?

A. I don't know as to that; but I should suppose it was not unlikely.

Mr. Dickson: That is all.

Redirect examination.

Mr. Lindley:

Q. Mr. Searles, can you explain how that error was made on that model?

A. Why, the error was made because the man who actually constructed the model was not familiar with the ground and simply failed to note that the elevations, as shown on the plan map, Plaintiff's Exhibit 1, correctly show the working at its point of juncture with the 569 raise to be higher than the bottom of that raise.

1082 Q. And the map shows the correct conditions?

A. Yes sir. And the working being in a somewhat obscure position on the model was overlooked by myself when I checked the model.

Q. I would like to have you explain a little further with reference to that raise, Mr. Searls, where you say this commercial ore is.

A. I would like to explain the position of the raise, which is better shown on Defendant's Exhibit "A." The raise in the Tonopah Mining stope in which it was driven, and 569 raise with which it connects. The raise marked here "C" leaves the Tonopah Mining stope at the point where the vein is flattening over to take the northerly roll and dip. And at the bottom of that raise where it leaves the Tonopah Mining stope, the main West End-MacNamara vein, the solid portion of it, can be seen rolling over under the bottom of the raise. And the raise itself was driven up diagonally on a rather steep dipping vein of quartz of a width of from 3 to 5 feet, so that the raise goes up angling, either on the dip or strike.

This vein or stringer is shown throughout the extent of the raise and at its top has a flatter dip than at its bottom and is evincing a tendency to turn over also. The same stringer may be seen in the

side of the 569 raise to come down with a southerly dip and inpinge upon or connect with the solid portion of the vein, which is clearly shown to take a flatter dip and continue along the flat portion of the 569 raise.

Mr. Lindley: Are you through, Mr. Dickson?
Mr. Dickson: No, I am waiting for you to get through.
Mr. Lindley: I am through.

1083 Recross-examination.

Mr. Dickson:

Q. I wish you would point out particularly, Mr. Searls, the point which you have in mind where you say that the MacNamara stope——

A. Tonopah Mining stope.

Q. Tonopah Mining stope, where it connects with that piece of working you have marked "C" is showing the tendency to flatten and go over——

A. I said that the vein, not the stope.

Q. Oh. Where have you indications on the model to show where the vein does that, or flattens?

A. The model there does not correctly represent the quartz as shown in those workings. For instance, the whole raise "C" is not quartz. There is other rock than quartz shown in the raise, and as is approximately indicated upon the model in a small projection of the stope to the north, below the upward continuation of the raise the solid quartz may be seen going into the floor of the raise. The stope at that point is partially filled with dirt that has been thrown down from above. By picking into that at the bottom of the raise, the solid quartz and ore upon which the stope came up may be seen rolling over into the floor of the raise and continuing on to the northward at a very flat angle.

Q. The connecting work marked "C" is not going up on the true dip, but angling and going up obliquely, isn't it true, to the local dip of the south dipping vein?

A. It is not going up upon the main portion of the south dipping vein at all, and it is going up obliquely upon the dip of the vein which it follows.

1084 Q. What vein is that?

A. It is a branch vein or stringer which runs up into the hanging wall of the main West-End-MacNamara vein.

Q. From which, in your judgment, commercial ore was taken from end to end? Is that in the vein or out of the vein?

A. It is within the vein.

Mr. Dickson: That is all.

Mr. Lindley: That is all. I would like to offer in evidence the two patents.

Mr. Dickson: With the admission that the claims *that the claims* are patented, of course I have no objection to your putting them in.

Mr. Lindley: Will you mark these, Mr. Clerk, Plaintiff's Exhibits——

Mr. Colby: Seven and eight.

Mr. Lindley: Now, if your Honor pleases,——

Mr. Dickson: Before you rest, Mr. Lindley, I would suggest that you do not announce that you rest until 2 o'clock. It is possible I may have some questions to ask.

Mr. Lindley: At any time when you want to call back any of my witnesses, if it occurs to you, call them back. We are after what the truth is and you can take them up any time they are here.

But, I was going to suggest to the Court that Mr. Finch, one of our witnesses, who has been in constant attendance upon the case desires to return home tomorrow morning and I would like to ask if there is any objection on the part of either the Court or Counsel to his doing so.

Mr. Dickson: None at all, on the part of Counsel.

1085 Mr. Lindley: If the Court desires to go underground again during our session here, Mr. Searls may take Mr. Finch's place.

Mr. Dickson: I would like to say in that connection that Mr. Wiley is desirous of leaving Wednesday morning; if absolutely indispensible he can remain until Thursday morning, and any time between that and the present, if your Honor should desire to go down, Mr. Wiley will be ready to go with Mr. Searls and your Honor. If the examination that your Honor desires to make can be completed before that time, of course, I do not know.

The Court: I am very willing that the gentlemen shall be released as they desire to be. I find that it will be necessary for me to spend three or four days in that mine, and I would suggest that two gentlemen shall be selected who are to remain here. If Mr. Searls is to remain he will be satisfactory for one side.

Mr. Dickson: Well, Mr. Wiley,—it is quite imperative he should get away from here by Thursday morning, but we were talking this over last evening, thinking it might arise today; if your Honor had not completed the examination you desired to make before Wednesday morning, say, and desired to make any further examination after New Years, and notified us, why, we could have Mr. Wiley return here at whatever time is necessary.

Mr. Lindley: Mr. Searls says he will remain as long as the Court wants.

Mr. Dickson: Mr. Wiley can remain here until Wednesday morning, or, if your Honor desires, until Thursday morning, and if the investigation you desire to make has not then been com-

1086 pleted, he can return here any time, say between the first and tenth of January, if you will give the local Counsel here, Mr. Atkinson, a few days' notice of when you will want him.

Mr. Lindley: Mr. Searles will be glad to come back. We have practically agreed on both sides that after the testimony is in, we will adjourn the case until the 22nd of January for the purposes of argument, if it is agreeable to you.

(Further discussion by Court and Counsel as to time for argument.)

Mr. Dickson: May I have permission to withdraw, in case I want to consult with the witnesses at the noon hour "Finch 4"?

Mr. Lindley: Sure; anything that you want Judge.

The Court: It is understood, then, that the argument will start on the 25th?

Mr. Lindley: That is quite agreeable with me, and I think it is to all of us.

The Court: This case is continued until 2 o'clock this afternoon.

1087 Afternoon Session, Two o'Clock p. m.

The Court: Jim Butler Tonopah Mining Company vs. the West End Consolidated Mining Company.

Mr. Dickson: Mr. Searls, take the stand for a moment. One question only.

Testimony of FRED SEARLS, further cross examination.

Mr. Dickson:

Q. You marked when upon the stand before a line upon Plaintiff's Exhibit one, in pencil, and wrote over it contact vein north and east.

A. Yes, sir.

Q. I understood you to say that all north and east of that line was a contact vein?

A. In a general way that is true, yes.

Q. And that all north and west of it is a fissure vein?

A. Yes, sir.

Q. The line at which the vein becomes tangent to the contact and becomes a contact vein is an irregular one.

Q. I know, but speaking generally I understand that that is not put on with absolute accuracy, but an approximation?

A. Yes, sir that is true.

Q. All northerly and westerly of that line the vein is a fissure vein?

A. Yes, sir.

1088 Mr. Dickson: That is all.

Mr. Lindley: Northerly and westerly?

Mr. Dickson: North and westerly, yes.

The Witness: Southerly and westerly.

Q. Southerly and westerly?

A. And to the north and east it also partakes of certain characteristics of a fissure vein, it does not cease to be a fissure vein when it becomes a contact.

Mr. Dickson: I understand that. If the court please there are some workings that we wish permission to put on our own model. Of course, we cannot do it to day, that is the 494 intermediate from 494 raise a little piece. The connection from the 152 raise to the 4-A raise which has been done by the Plaintiff company, the

continuation since the model was completed of the 533 raise and the 537 raise.

Mr. Lindley: *We,* with reference to that 537 raise, that is a situation which I wish to have some understanding about. We are going on with that raise.

Mr. Dickson: You what?

Mr. Lindley: I want to go on with that raise.

Mr. Dickson: Well, when the testimony closes do you still want to go on with it?

Mr. Lindley: Oh, I do not care anything about it. If you want us to stop why, we will stope it.

Mr. Dickson: I want to know what the state of the case is when we rest, that it all.

Mr. Lindley: I think we should have an understanding that when we submit the case on the evidence the work stops.

Mr. Dickson: Yes, so far as litigation work in concerned.

1089 Mr. Lindley: Litigation work, yes. That is satisfactory?

Mr. Dickson: Yes.

Mr. Lindley: Very well, the Plaintiff rests its case.

Mr. Dickson: Our rebuttal, if your Honor please, I take it will be very brief. I hope to get through with it this afternoon. Mr. Wiley.

Testimony of WALTER H. WILEY, who being recalled herein as a witness on behalf of the defendant, in rebuttal, testified as follows, to wit.

Direct examination.

Mr. Dickson:

Q. Mr. Wiley, have you made, since the commencement of this trial down to the present time,—I mean by that yesterday, a careful examination of the *of the* exposure of the edge of the vein claimed by the other side to be found at the westerly terminus of the vein, where it abuts the so call- Fraction dacite breccia?

A. I have.

Q. And have you made in that connection a careful examination with reference especially to the presence of oxidation along that erminal edge of the vein, and places if any where there was no evidence of oxidation on the edge of the vein itself?

1090 A. I have.

Q. And also of the presence of oxidation at and in what is called by the witness on behalf of the plaintiff, the Fraction dacite breccia?

A. I have.

Q. I wish you would state to the court the result of your observations in those respects.

A. There is oxidation in the quartz and in the country adjacent to what has been called the out-crop, that is, the termination to the west of the north dipping and south dipping veins. As stated in my direct there is rather more oxidation along this line than is com-

mon in the mine. Oxidation is not specially common in this mine as compared with other-, although there are many places indeed in the mine where there is very perceptible oxidation;

The oxidation extends alike into the vein, not exactly alike in all places, but it extends into the vein and into the dacite country adjacent to the vein. In my opinion it in no way represents the oxidation of an outcrop or an edge, which millions of years ago was exposed to the air. It is oxidation which has been formed in comparatively recent times, and in places it is going on to day.

The thing to my mind which convinces me absolutely that this oxidation has happened since the dacite intrusion or the dacite cap covered the vein, is that the dacite itself is oxidized. When it came there whether it be as detrital material through the air, or in the crater of a volcano as lava it was certainly not oxidized, and it is to day oxidized if anything more—I would not say that it is oxidized more, but its oxidation is more perceptible than that of the quartz, perhaps due to the fact that the mass of the dacite is much greater than that of the quartz. It is perceptible in the workings
1091 nearest the top and equally or more striking in the deeper down workings. The deepest workings which shows the edge of the vein is the 600 level and the winze extending below this level.

Q. What winze do you refer to?

A. A winze which extends from the 600 level, known as 664 which starts upon the vein and at its bottom reaches the dacite. The material in that winze and the 600 level is of the nature shown by two samples which I took. This sample which I hold in my hand marked 600 level,—will I mark it something else?

Q. No, that will be sufficient. There is no other sample so marked. Where was that taken Mr. Wiley?

A. It is a sample of dacite in the end of the 600 cross cut, near the edge, it is different in appearance from most of the dacite. It is a very soft rock, so I whittled that end off with my knife and marked it with my knife "600 level." The oxidation extends over a very considerable area in that section.

To show the difference in appearance of the dacite in different places this second sample which is marked "600-W" is from the bottom of the winze 664, at about a hundred feet away, the first sample coming from the end of the 600 level, the second one coming from the bottom of the winze. The winze there starts upon the quartz, the main vein, and at its bottom it cuts square into solid dacite.

Q. Where was this sample "600-W" taken.

A. From the bottom of that winze. It shows the same oxidation only a little more red in appearance than the other sample. So that I think this fact by itself is conclusive, and the explanation of this fact is doubtless that the contact an irregular line it is true, is often faulted and broken, and has formed crevices downward which
1092 water from the surface carrying the atmosphere, the air can easily penetrate and oxidize the material whatever it may be, vein or country rock.

1093 Q. How far out from the so-called terminal edge of the vein in the dacite did you find unmistakable evidences of oxidation in the dacite itself?

A. That varies like the oxidation almost everywhere, very much; on the 300 level there is very little oxidation in the dacite right next to the vein, and then you can — out for 50 feet or so further and you find a great deal of oxidation, and the intervening space in which there is not much oxidation. In the 600 the oxidation is much greater and extends out to the face of the level, a distance of forty or fifty feet on the termination of the vein.

Q. Have you anything further to say upon that?

A. I think that is sufficient.

Q. From your observation of the terminal edge, so called, the evidences of oxidation and all other matters that were observable by you, I will ask you if you found anything that would lead you to modify or change in any respect the testimony that you heretofore gave as to the strike, dip and top of our co-called south dipping and the so-called north dipping?

A. I found nothing, although if permitted, I would like to explain in connection with this dacite, the strike and dip, and the only reason why I called this an edge rather than a top.

Q. Very well, proceed.

A. The edge of the model, which is the term that would naturally be applied to it, shows the reason why I would call it the edge of the vein, which the model represents, but there are cases where, as for instance on the 300 level, there is stope where they have
1094 gone up and the dacite is reached by a raise extending up from the stope; that is, the top of that stope, beyond question in my mind, but again, when they run out on a horizontal working, a drift, and reached this, I call it the end of the drift. The miner who drove his level along the vein and then butted into this eruptive rock certainly did not appreciate that he had reached the top of the vein. He certainly thought he had reached the end, and he had. Another illustration is this winze 664; the vein has been followed in the stopes and raises and various workings from it- real top down to the 600 level and from there a winze has been sunk following the vein. The quartz in the vein and at the bottom it cuts squarely into dacite; the quartz is all gone. You have gone into the eruptive dacite at the bottom; in other words, if the dacite's contact is the top of the vein the miners sunk the winze downward upon the vein and hit the top.

We have there what Judge Lindley has called a "Z-pex," not an apex.

Mr. Lindley: I want to say I am not the originator of that Z-pex; that is one of Max Boehmer's.

A. Well, that is the bottom and the apex is the top, and I presumed that is what you had in mind.

Mr. Lindley: Well, you don't find that in Lindley on Mines, to be sure.

A. Well, at any rate, that is the bottom of the vein, not even the end, and as we come around on the eruptive rock we call it the

apex; in no sense the top, except locally, where, as I said, the stope for instance in the 300 level is cut off as you come up by this
1095 dacite. If, in that connection with that, the top—a few words in explanation of the dip and the strike is permissible, I would like to say that the miner in following his drift almost invariably has gone into that dacite; he was following out on the strike, and the strike of the vein being, as I understand it, as the miner uses that term, in the direction of his drift on a horizontal line, the development in this mine progresses on the north vein toward the MacNamara shaft through cross cuts and drifts on the vein, and on the other side been first cut in the McQuillan shaft. The miner extended his drift out along what he thought was the strike of the vein and he put up his upraises on what he supposed was the dip,——

Mr. Lindley: It seems to me we are traversing a good deal of ground that belonged in the Defendant's main case.

Mr. Dickson: We could not anticipate it very well.

Mr. Lindley: Well, it is the last word.

Mr. Dickson: No, I think Mr. Lindley will agree that it was impossible for us to anticipate that under the pleadings what will be considered the dip on this vein——

Mr. Lindley: Well, I want to say—whether the Court will determinate that this is rebuttal or not—there has not been an objection or ruling since this case started and there will not be. The witness can go on and say all he pleases.

The Witness: Well, just a few words.

Mr. Lindley: I simply wanted to put in a mild protest that this is just the last word.

Mr. Dickson: Well, I don't expect that protest. If this is objected to as rebuttal strictly we can discuss this when we come to the
1096 argument on the case.

Mr. Lindley: Well I want to say to you that I will not lay very much stress upon the question as to whether it is rebuttal or not.

A. Well, I will say simply this: If the strike of this vein is in a north and south direction along the end of this vein, then practically all the drifts on the north vein and the south dipping vein are upon the dip of the vein, and the miner in putting up his raises and sinking his winzes instead of going as he thought he was upon the dip, was going on the strike.

Mr. Dickson:

(Q.) Have you, since you were upon the stand before, heard the testimony on the part of Defendant Company—while it was being introduced, made any examination with a view to the so-called stringer zone or stringer section in the hanging wall and the foot wall of this country as testified to by Mr. Finch and a number of witnesses on the part of the Plaintiff?

Mr. Lindley: With the same protest, the burden of proof upon the Plaintiff, and the same suggestion; I do not wish to interpose a

formal objection but I will leave it to the Court as to whether it is sur-rebuttal or not,—and the witness may continue.

A. Well, then, very briefly I will say that I have——

Mr. Lindley: You need not be brief on my account; I have thrown the door open and you can go on and explain it.

A. I will say that there are many appearances of quartz which did not to me have the form of stringers; in places they are impregnations or replacements of the country rock near the vein; they run in different directions in the vein, and outside of the vein, and they are of different sizes, as claimed by them. Some of the appearances of quartz outside of the vein can be properly called stringers, but I think there are fewer stringers than are common in most
1097 veins of this size, and a great majority of the occurrences which are called stringers, have been called stringers, are simply cross streaks within the vein, which are not exactly parallel with the walls, or in some cases the main, large main, north dipping vein, in all cases I believe where it occurs above what is called the anticline, has been termed a stringer, or a series of stringers, and in my opinion that is the main north dipping vein, simply extending up above the top of the south dipping vein.

Q. Calling your attention to 488 raise, and the 2-A, 4-A, 5, 6, and 7-A raises, I will ask you if you have examined those recently?

A. I have.

Mr. Lindley: Wasn't he examined on this?

Mr. Dickson: Only as to the presence of the Siebert Fault.

Mr. Dickson:

Q. I will ask you if you found any evidence there of the quartz and ore found in those raises having been slashed through and partially cut off carried away by any independent fissure; I mean by independent fissure anything apart from the result of movement upon the hanging wall of the vein itself?

A. I find nothing whatever differing from what I gave in my direct testimony. I find a very plain, distinct——

Mr. Lindley: Now, are you going to repeat.

Mr. Dickson: There is nothing to add.

Q. I will ask you this question. Do you find any evidence there of an independent fissure coming in and cutting off a portion of the ore or quartz—I mean by independent fissure a separate fissure?

A. In my direct I spoke of one fissure in raise 5-A which had been slightly faulted near the apex.

Q. When were you last up 537 raise?

A. This morning.

1098 Q. How far up has that raise been extended?

A. It was 61 feet vertical above the bottom of its connection with the 569 raise.

Q. And what was discovered in that raise from its—throughout that 61 feet in the way of fissure or gouge?

A. There are some fissures near the bottom which are shown upon

the Exhibit Cross section-B, I think of the defendant, and since that cross section has been made the raise has been driven up about forty feet more. I can illustrate the situation plainly by taking the defendant's cross section and the Plaintiff's cross section of the same thing.

Q. All right.

Mr. Lindley: Well, there is no dispute that we have not uncovered the Siebert Fault in that raise. And he has marked upon that raise—Professor Lawson, has marked upon that raise the distance from that and it shows for itself that it has not been encountered.

Mr. Dickson: We want to point out if we can how nearly correct the recent work has shown our sketch to be, and the imperfections that the recent work has disclosed in your corresponding section, if you haven't any objection.

Mr. Lindley: Very well. We admit that they do not agree.

Mr. Dickson: We want to show which is correct.

Mr. Lindley: The correctness of your showing has not been challenged. You have mathematical propositions there, and these are simply geological sketches.

Mr. Dickson: Do you object?

Mr. Lindley: No, it is only part of my continued protest that this is not proper rebuttal.

1099 Mr. Dickson: My continued response to the protest is, that if it is necessary to argue this question when we come to the merits, I think we will be prepared to satisfy the court by a comparatively recent decision, I do not mean the last few years, I mean the last ten or fifteen years, but the Supreme Court of the United States, and the Supreme Court of Montana.

Mr. Lindley: Well, you won't be forced into that situation, I apprehend.

Mr. Dickson: Go ahead.

A. If the court will pardon me, if you can step close to section B, it can be seen. I cannot well bring that over.

The Defendant's section-B is nearly in the same place as the Plaintiff's Section No. 1, marked "Finch-4" they represent, both of them, on the same scale raise 488 extending above raise 569, raise 537 driven above the 500 foot level.

Mr. Dickson: Shown on both?

A. As shown on both sections. They also show with the exception that the north dipping vein is colored yellow on the defendant's section, and what has been called the stringers colored red on the Plaintiff's section, and some differences in the curvature in the portion of the vein, the same thing. The blue upon defendant's cross section along the yellow hanging wall, was put there to show that there had been faulting along that wall, and that in raise 488, as far as shown to the bottom, is what has been called the Siebert Fault, and is the same fault as is shown along the same raise 488 on the Plaintiff's section. The Plaintiff's section dots this same Siebert Fault continuing downward by the blue dashes, it being the same

that is drawn upon Plaintiff's section and actually cut *cut* by
1100 raise 537 near the top of the connecting drift with raise 569.

The extension of raise 537 to a height of 61 feet above the connecting drift with 569 places it as shown upon Plaintiff's section at an elevation higher than the bottom of the cross cut extending from the 400 level. This cross cut is not shown upon section-B. It is not exactly on the section and is not projected, but it is almost on the same section. It is exactly on this section for its first half where it is drawn in full, full line. The effect of this recent work is that it has failed to cut anything in the way of a slip, which could be called the Siebert Fault. So that the projection, which was simply a projection, I should say, and we could not expect it would cut it where it was laid down exactly, but it has failed abs*lo*utely to cut it to the height of the cross cut. At present therefore there is no slip, no Siebert Fault above the hanging wall of the north dipping vein.

Mr. Lindley: At that point.

A. On this line of section. This is absolutely proof. There is a slip at the contact with the cap in the end of this cross cut, but if that slip were the same as the Siebert Fault, then the fault would have to go up on the pitch across this cross cut before it came down again making a letter "S" to connect with this fracture, at the end of the cross cut. There is no such connecting slip shown in the cross cut. If the Siebert Fault is still above the head of this raise it would have to——

Mr. Dickson:

Q. You mean raise 537?

A. This 537, it would have to go up at the inclination approx-
imately shown by my pencil, if it were cut in the next shot,
1101 and it would form therefore, a trough, a steep dipping syn-
cline. The real facts in the case are that this so called Siebert Fault which is the hanging wall of the vein in 488, continues downward as the hanging wall of the vein through raise 537, as shown upon Plaintiff's section-B.

Q. I will ask you since you were upon the stand before, if there has been any new work done in Raise-A, and in a raise easterly thereof?

A. Raise A has been extended up about two feet, and there has been a sort of a drift extending from this in a northerly direction about six feet.

Q. What about the two feet in Raise-A, itself. What does that disclose?

A. There is no material change in the top of the raise. The drift which was driven in a northerly direction has more quartz in it than the top of the raise.

Q. Who did that work the last work you referred to the drift?

A. That was done by the Butler Company.

Q. Have you been in there recently?

A. I have.

Q. You say that there is more quartz there? How much of an exposure of quartz is there in that raise?

A. There is more than three feet of quartz in the northerly end of that raise.

Q. Now, has there been a raise started easterly of A-raise, since you were on the stand before?

A. There is a connection made by a little drift, about fifteen feet long with A-Raise, which follows along the same fraction called the Siebert Fault, which was disclosed in A-raise, and which we call the hanging wall of the north dipping vein.

1102 Q. Now, has there been by the defendant company another raise started east of A-raise, since you were on the stand before?

A. There have been two other little short raises, up only a few feet.

Q. What do thay show?

A. They show that what appeared before to be the hanging wall of the MacNamara stope was, in reality, not the hanging wall. That the wall extends back above that and the quartz and vein matter disclosed in those raises show that the vein is wider at that point, thicker than the wall of the stope before indicated it to be.

Q. How far is the most easterly of those raises east of A-raise? We will ask to have that put on. I did not mention it before.

A. Oh, about fifty feet, I have not measured it but about that.

Q. I will call your attention to what has been called "L-X-1" and ask you if you know where that sample came from?

A. This sample marked "L-X-1" was taken by me from the 400 level of the West End mine in drift 496, 35 feet east of the McQuillan shaft.

Q. Have you anything to say about it?

A. It is a sample of the vein as shown at that point and of the hanging wall of the vein and of the Siebert Fault, what has been called the Siebert Fault. I ground off that edge on the emery wheel just to show the nature of the quartz. It consists of several bands of different colored quartz which lie directly parallel to the gouge which is in the vein on the hanging side. I think it is but fair to

1103 say in this connection that in my opinion, Professor Lawson was right when he said he thought that that gouge was formed after the quartz. I think that is always true of any gouge anywhere, that it is formed afterwards. In some mines, it is being formed to-day. I think the gouge, being the product of attrition and slipping, after the deposition, after the filling of the vein itself, it is necessarily formed. But it illustrates the fact that the Siebert fault is a part of the vein. That it is not only exactly parallel to the banding of the quartz in the vein in this case, but that, as I said is a part of the vein, and in this case it forms and is the hanging wall of the north dipping vein.

Q. I will call your attention, Mr. Wiley, to a sample or rock marked "Lawson 9" and ask you if you find quartz of a similar honeycombed appearance down in the mine?

A. This sample, Lawson No. 9, is a sample of nearly solid quartz through which there are numerous vuggs or holes, and while it is in a sense honeycombed quartz and it often occurs near the outcrop of veins, where, for instance, the iron pyrites is dissolved out by the air

and the holes which were occupied by the pyrites remains, it is often more common near the surface of the veins than in depths; still, these holes are exactly similar, and this face is similar to other pieces which can be found throughout the mine in a hundred, or maybe a thousand, if you hunted enough, different places, and are in no sense the result of surface oxidation.

Q. Have you any other samples which you wish to——

A. I have not.

Mr. Dickson: That is all.

1104 Cross-examination.

Mr. Lindley:

(Q.) Have you been in raise 533 A?

A. I have not.

Q. You have not seen the exposure——

A. I have been there, but not since the new work was done.

Q. But since they encountered what our witnesses testified to be the Siebert fault?

A. I have not.

Q. You did not feel it was necessary to go there, I suppose?

A. No, I did not.

Q. Now, if you can concede for a moment that this vein is a rolling, anticlinal vein, and not two veins, that it is continuous from the bottom of the southerly dipping limb to the extent that it is developed in the northerly dipping vein, where is there a terminal edge of it?

A. There is a plainly defined terminal edge of the south dipping vein.

Q. I am speaking now of the conception for the moment, if you please, of one vein, not two veins?

A. Oh, if it is an unbroken fold, it would have no terminal edge.

Q. Is there no place where the vein terminates in the ground in dispute?

A. Well, it might have a terminal end and a terminal bottom, but not a terminal top.

Q. It might have. I am not asking you about a bottom
1105 or top. I am asking you for a terminal edge of this vein, regardless of whether there is a course downward from it or not? I want to know where the terminal edge is upon the theory that this is an anticlinal vein, as has been testified to by our witnesses? Where is there a terminal edge in the ground?

A. Is the bottom of a thing the edge? I suppose it is, isn't it?

Q. Yes sir.

A. In the sense that the edge of anything is the termination of it, simply terminates when you reach the dacite.

Q. That is what we call fraction dacite breccia?

A. It is.

Q. Which was there first, the vein or the fraction dacite breccia?

A. The vein.

Q. Well then, this question of oxidization is not material is it?

A. I do not think it is material in any sense of the word, personally, but I do think that the claims which were made as regards the oxidation were incorrect.

Q. Well, perhaps, but it is your conception of this vein that the edge existed before that material was evolved from the volcanic action, whether it may be an eruption or a falling on the vein, the vein was there first unquestionably?

A. The vein was there. It doubtless terminated some where, as all veins terminate. They terminate in the country rock, through dying out but——

Q. Are you prepared to say that this was not an original
1106 surface, what we call the dacite flow, what we call the fraction dacite breccia came out there, that that was the terminal edge and had been formed in the first place and it simply covered it up?

A. I am prepared to say that there was a surface somewhere, certainly.

Q. Was not that the surface at that time?

A. I can answer that fully and fairly, I think.

Q. All right; answer it.

A. I am not prepared to believe that every point on the present end of that vein is undisturbed in the position in which it was originally formed. I believe that the vein continued very much further into this volcanic crater of Brougher mountain and was very much disturbed, how much I do not know; haven't the slightest idea.

Q. Is that any suggestion, in your mind, Mr. Wilie, that this vein was faulted at that point and the remnant of it has been thrown somewhere else?

A. Yes, there are many points along that which not only indicate faulting, but actual slips.

Q. To such an extent as would enable you to correlate all those observations and determine the fact of the faulting?

A. To determine absolutely the fact of faulting, but not the extent. I do not believe—at least I have been unable to trace any one fault of enormous extent which slices off that whole vein; I do not think for a moment that happened, no.

Q. When, then the question of oxidization is really an immaterial
one as long as you realized that the vein was there before
1107 what covered it came up, is it not?

A. Well, it is immaterial, except as you may want to prove that that actual spot was the end.

Q. Well, that is the only end that we know of in modern times, when the vein was first discovered in the McQuillan shaft, wasn't it?

A. That we know as the vein actually exists, by no means, no. Still, assuming a fold—trying to forget all these facts that actually exist?

Q. No, I am taking the vein as we find it. The interpretation of the phenomena which you find there indicates clearly that what you call the dacite, what we call the fraction dacite breccia, came on to that vein after the vein was formed in its present position?

A. Yes.

Q. That is true?
A. Substantially.
Q. Well, would you say that that was a buried outcrop?
A. No, I would not call this an outcrop at all. It may never have come to the surface.
Q. Wasn't it a part of the original surface?
A. There was an original surface, but——
Q. Wasn't it a part of the original surface?
A. The exact edge as it exists to-day, I think not. How far it extends beyond that I do not know.
Q. How far is raise 537 from the plane of your section—of our section I?
A. 30 feet. That is raise 537 is 30 feet east of your Section 1.
Q. Where is raise 533 A with reference to that section?
1108 A. 533 A is 75 feet west of your section No. 1.
Q. How many feet?
A. Seventy-five.
Q. Seventy-five feet?
A. Yes.
Q. Now, look at your section C, for instance, and tell us if that is a fair demonstration of the fact that you know to exist in that mine in reference to the position of your fault?
A. 533 A shows the fault marked above the head of the raise 2 A, that is, it is shown in blue as the hanging wall of the vein, and in blue because there has been faulting. It is extended down as far as developed into a short distance below. Beyond that, it is not marked. The vein is continued through and raise 533 A is shown as going up through the north dipping vein to the height it was at that time. It is a fair representation of the facts as they were then, and probably as they are now.
Q. You did not know of the existence of that fault in that section at the time that section was made, did you?
A. This fault which is cut almost exactly where we have shown the contact between the trachyte and the cap is, while I have not seen it, I won't attempt to describe it, I simply call attention to the fact, it is cut just about or near where we have shown the contact, and there has been faulting along nearly all these contacts, so I could expect to find a fault at that point.
Q. Well, if you showed it where it is, it would be separate from the hanging wall of your vein, wouldn't it?
A. This fault you have got would be near the contact of the overlying rock, and above the hanging wall of the vein, yes.
1109 Q. Above the hanging wall of the vein?
A. Yes.
Q. How far above?
A. How high up is it cut?
Q. Seventy-six feet.
A. About twenty-two feet above the hanging wall, as shown here, and just above five feet below where the cap is marked upon that cross section.

Mr. Lindley: That is all. Let me see those last exhibits. There ought to be some—Wilie what? Mr. Wilie, will you kindly hand me the exhibits that you put in here.

1110 The Court: If marked with numbers, that would be Wiley 8 and 9.

Mr. Lindley: Well, it ought to be marked so that there would be some way of identifying that.

Mr. Colby: Wiley eight and nine in the sequence.

Mr. Lindley: Well let Mr. Wiley mark them. (Witness marking exhibit.)

Mr. Dickson: Is that all.

Mr. Lindley: Yes.

Testimony of HORACE V. WINCHELL, — being recalled herein as a witness on behalf of the defendant in rebuttal testified as follows, to wit.

Direct examination.

Mr. Dickson:

Q. Mr. Winchell, have you made a careful examination of what was called by the other side the terminal edge of this vein in its westerly course?

A. I have.

Q. And of the Fraction dacite breccia in contact with it and extending out westerly from it?

A. I have.

Q. I wish you would state to the court what observations you made and the result of them?

A. The dacite breccia which upon the occasion of my former testimony, I designated as the Brougher dacite breccia,—and is now called the Fraction dacite breccia by the defendants,—

1111 is found at many places in the mine workings, in the western portion of the mine; it is not found alone exhibited at what has been termed the western terminal edge of the vein, but it has been found in some of the stopes and its relation to the vein is commonly that of an eruptive contact.

Q. And eruptive what?

A. Contact with faulting phenomena. Thus for instance with the stope above the four hundred level we have extending to the eastward—I can illustrate it upon defendant's model if you will permit me,—upon the model Defendant's Exhibit-A, there is a gap in the stope to a considerable extent.

Q. Designate the place as near as you can for the record.

A. It is immediately above the 401 drift, and is noticeable above the top of the 415-raise, easterly and westerly from that point. As you pass through the stopes in this vicinity you will notice the southern edge of the stope marked by a very much oxidized brownish red and some times yellowish band of dacite breccia. It shows extending out perhaps two hundred feet, intruded into the vein in that part of the ground. Considerable oxidation has resulted

there from the percolation of waters downward along this intrusive dyke or wedge of material. We have further north——

Q. Before you give that point, I will ask you whether or no the material that you find there, which you speak of as intrusive, is the same material that is spoken of by the witnesses on the other side, as the Fraction dacite breccia?

A. It is a portion of the same material although in this position it is not so fragmental; it is of more even grain, and more of the texture of an intrusive rock, than of the volcanic fragmental
1112 rock. Upon the 600 level just near the western end, and east of winze 664, we have another case of the dacite breccia intruding and cutting across the broken edge of the quartz for a distance of from twenty-five to thirty-five feet, and penetrating that quartz. In the MacNamara stope near the west end we have working stopes abutted against the dacite breccia, and many examples of the nature of the contact; and here invariably we find dacite not always typical breccia but sometimes rather that of an intrusive homogeneous dacite eruptive abutting against the quartz; terminating it, and displaying fault movement. In other words, the contact generally in most cases where observed in the ground between the quartz and the dacite breccia is that of intrusion or eruptive contact with faulting.

Q. As distinguished from the faulting down?

A. As distinguished from the appearance of a shower of volcanic ashes upon the upper edge of the vein at the western terminal edge of the 300 level. We have another spot with contact oxidation phenomena abundantly displayed; the dacite itself is rather more oxidized, much more oxidized than the quartz, but as we go westerly from the immediate vicinity of the plane of contact, the dacite becomes less oxidized indicating that the waters which produced the oxidation in both the quartz and dacite penetrated along the contact; as we go further west in the dacite breccia we find there evidences of movement, along which surface waters have again penetrated and again produced the phenomena of oxidation; at the terminal edge of the vein west on the 300 level west end, we find the quartz similarly abutting against the dacite; it is further noticeable that in every instance the plane of contact between the dacite breccia and the quartz is not an overlapping, although there are places as shown in 484, where the dacite breccia does rest upon
1113 the top or hanging wall of the quartz, yet at the terminal edge the plane of contact is steep, from forty-five degrees vertical, and not that of a gentle outcropping slope as indicated upon the block model which Mr. Finch has produced. At this terminal edge upon the 300 level west, a drift, a short drift about two or three rounds of shots, has been driven since I delivered my testimony in chief—I suppose for the purpose of ascertaining the precise shape.

Q. Do you know who did that work?

A. It was done at the request of the Plaintiff—and it shows that the vein must have been indeed projected some distance above the surface at that point, if it were an outcropping or projecting vein,

because the eruptive rock lies under the edge of the vein; the vein is not directly supported upon the trachyte, its country rock, but the dacite breccia underlies it and the contact t-ere is not a west dipping or a southerly dipping but a steeply east-dipping plane of contact. This breccia lies as we all know in the edge of a volcanic neck, Brougher Mountain, and has been discharged from it. It is not ten miles away nor one mile, nor a thousand feet, but immediately in that vicinity; and upon Brougher Mountain you find the volcanic rock itself exhibited in the shape of basaltic columns some of which has been quarried for building stone rock in Tonopah. We find furthermore evidences of eruptive explosive action in the large and small, angular, not at all rounded, weather-worn fragments of quartz thrown out from the vein and included in the dacite breccia some distance away from the terminal edge, and if in a position where it *was* at some time have been covered over by a shower of ashes must have been suspended in the atmosphere during that shower.

1114 I have a sample which I should like to show illustrating this point. How shall I mark this?

The Court: I think that it is Winchell No. 1.

A. The sample which I hold in my hand is marked upon the tag "Winchell-1" it represents a fragment of almost retangular shape about five inches in length and three inches in width, honeycombed in the characteristic fashion of the quartz of this vein, containing partially replaced trachyte, fragment such as the vein exhibits,—both veins exhibit everywhere—and surrounded by the dacite breccia. This sample to my mind, is an evidence of the nature of the explosive force which caused the terminal edge of the vein—produced it.

Q. What explosive do you refer to?

A. Explosive disrupting action of a volcano. I don't believe that there was any terminal edge there until the volcano blew out a segment of the vein and produced the terminal edge which we find in the ground to day.

Q. Where was that sample taken from Mr. Winchell?

A. That sample was taken a few feet west of the terminal edge of the vein as exposed upon the 300 level of the West End Mine.

Q. I call your attention to the sample marked "L-2" and ask you if you know where that was taken from, if you can point it out on the defendant's model Exhibit-A.

A. I do know and I can point it out on the model and upon the plan map, Plaintiff's Exhibit-1. I have several other fragments of the same material taken from the same place. This is a sample of ore containing sulphide silver minerals, manganese minerals, either the carbonate or silicate of manganese, and banded quartz, it displays no evidences of oxidation; it discloses the——

[Page 1115 of manuscript omitted in original transcript.]

1116 reached by the workings in the mine, and it displays abundant cavities of dissolution, and cavities in which the quartz

has not entirely replaced the fragments of original material, the included trachyte, and in which the soft kaolinized trachyte has been removed.

Sample marked "Winchell-3" is a sample of ixidized iron stained quartz taken from stope 500-C, the large stope in the eastern portion of the mine just above the 600 level, therefore at great depth; this oxidation is striking, but upon exposing the freshly broken vein we discover the ore to be of unusual richness, the several minerals in bands reaching a thickness of about a half an inch, and the ore of unusual high grade and oxidized, at one of the lowest points reached by the mine's workings; except for additional samples above stope 338, that is all the samples that I have.

Q. From all of your observations, examination made along this so-called terminal edge, since you were last upon the stand, I will ask you whether — have detected anything which would lead you to modify the opinion which you gave when before upon the stand, as to the strike, dip and top or apex of the north dipping and south dipping veins, or either one of them.

Mr. Lindley: Well, he would be something more than human if he would come back and contradict his original testimony. That is not rebuttal to ask him if he has changed his mind.

Mr. Dickson: I asked him if he had seen anything since your witnesses had testified,—I——

(Further discussion between counsel.)

Mr. Dickson: We had no reason to apprehend any such claim as this, and I ask him in view of this, when he went back,—in view of the testimony given upon the other side, and the
1117 light that that testimony shed upon this case, and on his subsequent examination whether he discovered anything which modifies his opinion as to strike or dip or top of either one of these veins.

A. I have not discovered anything which leads me to change my opinion, which is my positive conviction as to the structural and genetic relations of these veins.

Q. What have you, if anything, to say Mr. Winchell, about the so called stringer zone in the hanging and foot wall of this vein or these veins?

A. In my testimony in chief I referred to some north and south bands of silica with a generally steep dip, nearly vertical or steeply dipping to the east, which I mentioned as underlying the line of intersection of the north dipping and south dipping vein. If those can be called stringers then I am willing to subscribe to the opinion that there are stringers beneath the vein, but I have already given or mentioned the facts, which leads me to believe that those north and south bands of quartz were deposited prior to the formation of either the north or south dipping vein.

Mr. Lindley: Is this going to be a repetition of his direct testimony?

The Witness: No, I am not going to tell you——

Mr. Lindley: I am going to move to strike it out. This is simply

a re-argument of the whole thing that has already been brought out in the first instance.

The Court: As to that, this is called rebuttal, and I think that it is correctly called so, speaking generally there is no objection on the part of this court and there never has been to what might
1118 be called sur-rebuttal, so the last word proposition is just as much applicable to one side as the other, and, as to each side, finishes I suppose——

Mr. Dickson: Personally I care nothing about what the witness is speaking of. I will direct his attention to the so called stringer zone, and I will confine it to the stringer zone in the hanging wall country respecting which he had no occasion——

The Court: I think that it would be well to avoid repeating the original testimony, and to bring out the points which are new.

A. I will endeavor to do so. I wish to guard against excluding something which might be regarded as stringers, which I have already described. I have searched in the country above and below these veins for evidences of the halo or stringer zone. In the vicinity of the junction point of the Fraction vein and the main south dipping vein, the trachyte has been shattered in that vicinity as disclosed in 712 cross cut of the Tonopah or Jim Butler Mining company, I don't remember which, we find considerable fracturing and the formation of the bands of quartz. In the hanging wall country of both the north dipping and southerly dipping vein, there is a conspicuous absence of such stringers where the stopes have reached unquestioned trachyte. Upon the hanging there is occasionally a little quartz seam running in any particular direction extending upward; but usually the trachyte is not fissured and full of quartz stringers, and what stringers there are do not lie parallel generally to the dip of the main vein; within the vein itself there are sometimes bands and streaks of quartz running in various direction-, representing original fractures in the included mass of rock, which has now been changed into vein material.

1119 Q. In reference to what has been said of the Siebert Fault, and the 488 Raise and the A-series of raises, I will ask you to state whether or no you have observed—have been able to detect evidence of any fissure other than the vein fissure itself which has slashed through those raises and cut off a portion of the quartz or ore upon which the several raises have been driven upward?

A. I see no fissure anywhere cutting and displacing the north dipping vein.

Mr. Dickson: That is all.

Cross-examination.

Mr. Lindley:

Q. How many terminal edges do you find in this vein, assuming it to be one vein and not two?

A. One.

Q. Where is it?

A. One complete terminal edge?
Q. Where is it?
A. And other partial terminal edges.
Q. Where is the complete terminal edge?
A. It is exposed in the western portion of the mine at the upper edge of the stopes and raises, and in the drift extending westward into the neck of the volcano.
Q. Which was there first, the vein or the neck of the volcano?
A. The vein was there first and it was disruptured and blown into smithereens by the volcano.
Q. After the volcano had spent itself and blown this vein into smithereens, that constituted the terminal edge of the vein didn't it?
A. Yes.
1120 Q. And if that left an original surface that would be an outcrop wouldn't it, if it was left——
A. If what left an original surface?
Q. The tearing off of the vein?
A. Well, it did not.
Q. You say that there was no original surface there?
A. I say there was not.
Q. And you say that the Fraction dacite breccia is something that erupted from the neck of a volcano?
A. Yes.
Q. You are sure of that?
A. Yes.
Q. Then the crater must have been right there?
A. In that vicinity?
Q. Well if it erupted, came up, it must have been in the crater movement?
A. Not necessarily in the center of the crater, but it must have been within the zone of explosive action.
Q. Do you classify what we call the Fraction dacite breccia with the Brougher Mountain dacite?
A. Yes.
Q. There is a coulmnal structure to the Brougher Mountain dacite?
A. Yes, there is in the middle of this volcano.
Q. That you can stand on the streets of Tonopah and see?
A. Yes.
Q. Do you see any structure of that kind in the neighborhood of the West End workings, or West End-MacNamara workings?
A. No, that structure is not exhibited there, because the material is largely fragmental, nevertheless it represents a part of the same general volcanic mass.
Q. Have you ever analyzed that rock, either chemically or under a microscope?
—. I have not.
Q. That is this Fraction dacite breccia,—have you ever
1121 examined the Brougher Mountain dacite under a microscope or chemically?
A. No.
Q. They are the same?

A. Part of the same volcanic——

Q. They are the same——

A. There may have been mingled with what you call the Fraction dacite breccia, likewise volcanic material from volcanoes in the vicinity, but in general they are part of the same eruptive mass.

Q. Or in other words there was a sort of family of volcanoes at work at that time?

A. I presume that there was a little clan of them.

Q. A little combination of them?

A. Yes.

Q. And you called the whole material dacite?

A. Dacite breccia.

Q. You did not think it was important enough to determine as far as the genesis of this was concerned, the Brougher Mountain, or the Fraction dacite breccia?

A. I think there is some similarity in appearance.

1122 Q. But from the same volcano, the same crater?

A. I haven't any doubt of it.

Q. Well, if we concede for a moment that you p-ssibly might be wrong in some of your deductions, possibly, although you seem to be very certain about it——

Mr. Dickson: No more so than some of the gentlemen on the other side.

Mr. Lindley: Perhaps not quite so much so through lack of faith.

Mr. Dickson: Well, maybe something else than a lack of faith, too.

Mr. Lindley:

(Q.) Mr. Winchell, assuming that this is all one vein, perhaps it is our mistake, that is for his Honor to tell; at present I do not mean any reflection on the witness or on Counsel. That this is all one vein, that is to say it is an anticlinal vein as described by the gentlemen who have testified in behalf of the Plaintiff in this case, where is the top?

A. I thank you for suggesting the reason for my positiveness, namely, my entire conviction. It is difficult for me to assume that it is all one vein in the face of the structural evidence that the south dipping vein has a top and apex against the north dipping vein, but I will assume——

Q. Yes, please.

A. And then I should say that the top or apex is the highest point to which a miner could follow ore from his level upward upon the dip of the vein.

Q. In other words, the crest of the anticline is the apex?

A. Yes sir.

Q. Were you ever at Leadville?

1123 A. Yes.

Q. Do you get your ideas from conditions in Leadville?

A. I base my ideas upon the conditions in this ground and with entire knowledge of the conditions in Leadville; that is, with a general knowledge.

Q. In other words, you think the apex of a vein is the top of an anticlinal fold?

Mr. Dickson: Wait a moment.

Mr. Lindley: This is proper cross examination.

Mr. Dickson: I do not know whether it is or not. My understanding and belief is, and it is derived too, from the teachings of my learned friend, that the facts in the Leadville region where they have the so called blanket veins, bear practically no analogy to a single anticlinal fold such as we have here.

(Further discussion by Counsel.)

Mr. Lindley: That is all, Mr. Winchell.

Mr. Dickson: That is all, Mr. Winchell.

Mr. Clerk, will you get me the answer in the case of the West End Consolidated Mining Company against the Jim Butler Tonopah Mining Company?

Mr. Lindley: If Counsel will state what he wants to prove, I may admit it.

Mr. Dickson: I will simply make the offer, reading into the record that paragraph.

Mr. Lindley: The situation is this, if your Honor please, in order that you may weigh the simple suggestion that it is not rebuttal. The Jim Butler Mining Company ascertained in January by an open connection with the West End Company that they were working a vein that was underneath their vertical planes. Of course, the Jim Butler Company had not participated in the early development of the structural conditions of this vein in either the MacNamara or West End or Tonopah Extension troubles, knew nothing about it. And it has taken some time to develop the actual situation. And it appears that during the course of time, some time during the progress of the development that one of the engineers in this case developed facts sufficient to determine that, in his judgment, at least, the western terminus of this vein against the Fraction dacite breccia was the top of the vein.

1124

The replication was filed in this case before the facts were known to the Counsel who prepared the replication, and before the Counsel in the case could be convinced that that was a proper defense to the action. That is the truth of the matter. Later on, the West End Mining Company commenced a counter suit based upon the fraction vein, a vein which so far as this case is concerned, is a secondary one, and it is so alleged in the pleadings, crossing the West End side lines.

Mr. Alling: One moment, Mr. Lindley. This is not a matter that is before the Court. If Mr. Lindley desires to have it regarded as evidence, we are perfectly willing that it should be so regarded, provided Mr. Lindley will permit us to cross examine him, or the Butler people concerning their claim of not having any earlier knowledge of that western condition. Now, Mr. Lindley may not have that knowledge. But Mr. Lindley will admit, doubtless, what Mr. Finch said upon the stand, that the fact that there was a broken edge on the West was town talk.

1125 Mr. Lindley: Well, I do not suppose that Mr. Finch could have acquired any knowledge of town talk until he came to town, and that would not happen until long after the trespass of the West End into the Jim Butler ground, and until after probably the discoveries were made.

I simply want to illustrate the fact that when the Fraction suit was brought we made the specific allegation that this was either an anticlinal vein, or [illegible] crossed the side lines in the answer to the Fraction vein suit. The denials in the replication in the Jim Butler suit against the West End denied that there was any vein that crossed the end lines and in its downward course entered underneath the Butler surface. And Mr. Dickson was kind enough to say, when the question was before the Court previously, referring to this when I asked him the object of the question, that he considered that the answer or the replication in this case was sufficient to cover the issues and it was not necessary to amend, so far as the allegations of the vein crossing the side lines are concerned.

Now, I think it is entirely irrelevant and immaterial and incompetent, and almost impertinent for a gentleman of the distinction of Mr. Dickson to offer in evidence an instrument of this character with all the varied denials that there are in it, and insist that it is an estoppel upon our part when the true facts have been developed in this case. He may have a justifiable theory for it, but I think it is a mistake. That is a pleading in -hat case. It is not an estoppel, it is not urged as an estoppel, and it could not be in any event, it being filed subsequent in another piece of litigation which is entirely
1126 based upon another cause of action. Now, that is my view of that answer. We have had this same thing under discussion before.

Mr. Dickson: I never consciously offer anything in evidence that is impertinent. My duty, as every lawyer's duty to his client, constrains him to offer everything in evidence that he thinks is competent and has any—material bearing upon the issues. If he fails to do so, he fails to discharge his full duty to his client. Now, I care not to discuss this further.

I offer a paragraph of this answer filed only a few weeks ago, on the 16th day of last month, for the purpose of showing that according to the light that the Defendant then had, as recently as that, they did not know whether to base its claim here upon the theory that this vein having an anticlinal roll that it had no top, or to base it upon the contention that it did have a top or apex in this vein, but that top or apex crossed the side lines of this plane.

This case has been pending for many months; ever since last April. As is developed before your Honor, these eminent experts have been here examining this ground from an early day after the commencement of this suit, repeated examinations, and yet must it be assumed that the Defendant when it interposed this answer had the benefit of all the light that its experts were then able to furnish it with; it is manifest from a paragraph of the answer that the Defendant then was uncertain on this all-important and vital issue.

Mr. Lindley: Well, I confess, if your Honor please, I am uncer-

tain yet, as far as that is concerned, and I confess to the Court
1127 very frankly, as I did the other day, that I am in hopes that we won't have to depend on it for many reasons, and I thought I was very frank in my statement at the time for the benefit of counsel and for the benefit of the Court. But out of the superabundance of precaution, it is put in there.

I object to this and ask the Court to reserve its ruling until we argue the case.

Mr. Dickson: I have no objection to that. I offer the whole answer, but the one paragraph particularly——

Mr. Lindley: Of course, you must take the pleadings as a whole by four corners.

Mr. Dickson: That is what I was saying. I offer the whole of it, but the only part which I wish to read into the record and especially make the offer——

The Court: I suppose the pleading should be known as "Defendant's Exhibit M" in the case.

Mr. Dickson: Filed on the 16th day of November, and the paragraph referred to reads as follows:

"Defendant denies that the discovery vein or lode of the West End claim referred to in Paragraph V of said complaint is commonly called and known as the 'West End' vein or lode, but on the contrary alleges that it is commonly known as and referred to as the Tonopah-Extension-MacNamara-West-End-Jim Butler vein or lode, and defendant further alleges that the original discovery of rock in place bearing gold, silver, or other valuable metals upon said West End mining claim was made upon the said Tonopah Extension-MacNamara-West-End-Jim Butler vein or lode, and that said vein or lode was, at all times has been, and now is, the discovery
1128 and location and primary vein or lode of said West End mining claim. And defendant avers that there is no top or apex of said discovery vein within the limits of said West End Mining claim. That said so-called West End or Tonopah Extension-MacNamara-West End-Jim Butler vein is a deposit in the nature of a sheeted zone or belt of mineralized rock lying between two formations, and is found underneath the surface of mining claims adjoining and to the north of said West End mining claim, to wit the MacNamara, Tonopah Extension, and other claims. It also lies underneath the surface of the West End mining claim, as well as the properties of this defendant, to wit, the Eureka and Curtis mining claims, and also lies underneath the surface of many other claims in the Tonopah mining district. That said vein by reason of its form or structure has no apex, or if it has an apex, the same crossed the northerly and southerly boundaries of said West End mining claim, and does not cross either the easterly or westerly boundaries of said claim.

Mr. Lindley: As I said, your Honor can rule on that when you feel inclined to do so. I submit that the entire atmosphere and environment of the case is before the court and it can see if it becomes necessary or not.

And can rule if it becomes necessary to rule later on.

Mr. Dickson: It is marked "Defendant's Exhibit M."

Mr. Lindley: Now, Mr. Dickson, in reference to the future inspection of the property by the Court, I suggest that Mr. Wiley and Mr. Searls and the Court get together and fix that time.

1129 Mr. Dickson: That is quite agreeable to me.

Mr. Lindley: Is that agreeable to your Honor?

The Court: That is very satisfactory.

Mr. Dickson: We rest.

The Court: The case is continued until January 25th——

Mr. Lindley: May the record not state that the evidence in the case is closed and that we adjourn for argument until the 25th of January?

Mr. Dickson: It is understood on both sides that there will be no further evidence offered based upon any new work done by either side.

Mr. Lindley: There is another matter before adjourning, if your Honor please, that I would like to speak about. The status of the testimony in this case, that is, the transcriptions, the witnesses are endeavoring to straighten that matter out and going over and making such suggestions as to possible errors or omissions. Ordinarily, I understand the rule to be that the witnesses woould have to be called back on the stand to make those corrections. What are we going to do about it?

Mr. Dickson: We waive that, of course. Each side will furnish the other with a corrected copy.

Mr. Alling: May I suggest that each of the witnesses correcting his evidence endorse the fact that correction has been made by him upon the section or sections of the record in which the corrections occurred, and that the reporter be authorized, insofar as it is necessary, we furnishing him with all four copies, for that purpose, to make the corrections and thereafter transmit to each of us our corrected copies.

1130 The Court: In that connection, has any arrangement been made to furnish me a copy?

Mr. Dickson: Yes.

Mr. Lindley: Sure.

Mr. Dickson: After they are corrected, the original will be handed to the Court. I understand from somebody that Mr. Lozano said that he could do this much better by taking his notes and the transcripts to Reno and make the corrections for the original copy there.

Mr. Lindley: I have no objection to that. We all have our own copies from which we can marshal the evidence for the purposes of the argument. I think we understand the situation.

Mr. Dickson: I believe there will be no misunderstanding.

The Court: I think, Judge Lindley, you were going to speak with reference to closing the evidence, or not closing it.

Mr. Lindley: An order of the Court may be entered submitting the case so far as the testimony on both sides is concerned and on the issues under the stipulation. And that an adjournment now be had until the 25th of January for the purpose of hearing the argument.

Mr. Downer: The evidence will be closed except the inspection.

Mr. Lindley: We do not consider that evidence, although the

Supreme Court of California says it is; with that saving clause, that whatever the Court see is not to be considered as evidence.

Mr. Dickson: All the samples which were referred to this
1131 afternoon will be considered in evidence.

Mr. Lindley: Everything that has been referred to by any witness on either side is to be considered in evidence.

The Court: Enter the order, Mr. Clerk, that the evidence in the case is closed, with the exception of whatever status as evidence an inspection by the Court may have.

The case is continued until January 25th, at 10 A. M. for argument.

1132 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

No. 2999.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Certificate of the Court Reporter.

I, Joseph Lozano, do hereby certify that pursuant to stipulation made and entered into between the above-entitled parties and their counsel, I acted as shorthand reporter of the above-entitled court and acted as such in the trial of the above-entitled cause; that the annexed and foregoing shorthand report of evidence, herein designated as Volume II., together with Volume I. herein, is a full, true and complete report of the evidence in the said cause, and contains, with the exhibits, records and documentary evidence therein referred to and identified, all the evidence offered, given or introduced in said cause by the respective parties upon the trial thereof; all of the objections and motions of the said parties thereto, or any part thereof; and all rulings of the court upon such objections and motions, and all exceptions to such rulings, had and taken during said trial.

Signed this — day of August, 1915.

——— ———.

1133 I, Mark R. Averill, do hereby certify that I am the Judge before whom the above-entitled cause was tried; that Joseph Lozano was, by stipulation of the parties, the shorthand reporter who reported said cause; that the annexed and foregoing shorthand report of evidence, designated as Volume II., together with Volume I. herein, duly certified by the said reporter, is the report of the evidence in said cause, and contains, with the records, exhibits and documentary evidence therein referred to and identified, all of the evidence offered, given or introduced in said cause by the respective parties upon the trial thereof; and all objections and motions of said parties thereto, or any part thereof; and all rulings of the court upon

such objections and motions, and all exceptions to such ruling, had and taken at said trial.

Dated: This 28th day of August, 1915.

MARK R. AVERILL,
District Judge.

1134–1136 In the Supreme Court of the State of Nevada.

No. 2195.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Respondent.

I, H. R. Mighels, Clerk of the Supreme Court of the State of Nevada, do hereby certify that the foregoing pages numbered from 511 to 1131 inclusive comprise volume 2 of the Record on Appeal in the above entitled cause, and that the same have been compared and is a true and correct copy of the original now on file in my office.

Given under my hand and seal of said Court, this seventh day of August, 1916.

[Seal Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk Supreme Court of the State of Nevada.

[United States internal revenue documentary stamp. Series of 1914, ten cents. Cancelled 8/8/1916. H. R. M.]

* * * * * * *

1137 Copy.

In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Opinion.

The decision of this phase of this case in this court is not important upon the questions of law involved, and great responsibility does not rest upon the court in that respect, if it be assumed that the case will be appealed, which is probably not unlikely; but a very great responsibility is imposed upon this court as to its findings upon the questions of fact, which, unless much at variance with the evi-

dence as it appears in the transcript, will probably not be disturbed by any higher court. This then is the task undertaken, to be performed humbly and carefully and with the hope that the results reached may impress those who have no immediate interest in the outcome as rational and correct.

The all-important contention of fact is whether the body of quartz, ore etc., or the bodies of quartz, ore, etc., in controversy constitute one vein or two. The evidence easily preponderates that it, or they, form but one vein, which will be referred to generally hereinafter as the MacNamara-West End Vein. But, though thus found, to be one vein, this conclusion is not at all what might be called an absolute one, but is qualified, as will further appear in this discussion.

1138 During the taking of evidence and in the argument a tendency was occasionally vocally manifested by experts and counsel to view the situation from the standpoint of the miner. Nothing in the law or elsewhere demands of a skilled geologist or lawyer that he view anything as a prospector might or he who wields a shovel, but this tendency had at least the value of preventing these learned gentlemen from wandering too deeply into the often uncertain realms of speculative geology.

Before proceeding further the positive position must be adopted that things are to be taken as we find them now. Speculative geology will be resorted to, but only for the purpose of explaining the present situation, and without basing any final conclusion thereupon.

Four models were used at the trial, one of which, a skeleton model, offered by the West End, will be called the West End model. The corresponding skeleton model offered by the plaintiff company will be called the Butler model; and the other two, also offered by the plaintiff company, will be called the glass model and the block model respectively.

It will be necessary to refer to three surfaces of the earth over the territory where the vein in dispute now is, the present surface, which will be so called; the surface that existed just before the materials which form the present surface were deposited, which will be called the Trachyte Surface, and the surface which existed prior to the erosion which left the Trachyte Surface and immediately after the vein was formed, which will be called, for want of better name, the Original Surface. The most ancient of these was the Original Surface and the next the Trachyte Surface, with probably a long period of time, geologically speaking, between them. Prof. Lawson

1139 describes another surface, which followed the Midway Andesite flow, and which is of no value to this discussion, except that, in a greatly eroded condition it forms part of the present surface, that part overlying the northeast corner of the West End Claim, extending thence easterly and north-easterly.

References will be made in parentheses. These are all to the transcript of the evidence except as otherwise noted, the name given being in nearly every case that of the witness, but occasionally that of an attorney. The references are given only to statements that are conspicuously in point. Many more could have been given, running

into the hundreds, but their worth would be only by way of cumulation.

A pronounced contention of the plaintiff is that the Trachyte Surface formed a hill one of whose slopes faced the west; and that, as a result of erosion, the vein outcropped on that hillside along a northerly and southerly line; and that, assuming the Trachyte Surface to be that surface to which the apical facts should be referred and upon which the lines of the West End Claim should be considered to be imposed, rather than upon the present surface, the apex of the vein crosses the side-lines of the claim; and that, if the West End Claim possesses any extralateral rights, they are defined by the vertical planes of the side-lines projected easterly. This contention is without merit. The evidence easily preponderates that there never existed any such hill slope—that the vein had no such outcrop on the Trachyte Surface, but that its termination, as that now exists in the westerly portion of the West End Claim, is the result of the eruption of the volcanic neck known as Mt. Brougher, during which
1140 the vein was blown out of existence beyond the line westerly and southerly of where it is now found in the western workings. (Winchell, 1113, 1114, 1115, 1119.) Before that outburst the vein extended onward under the Trachyte Surface, outcropping only as hereinafter described. (This opinion, 16.) All the testimony upon which this contention of an ancient hillside with an outcrop upon it rested was explained away in the rebuttal. (Wiley, 1094, 1090, 1103.)

The plaintiff company rests its case to a great extent upon its claim that the vein is an anticline. That the vein is an anticline, using the word broadly and generally, is true; but strictly speaking it is not true either geometrically or geologically. The difference, however, is merely one of wording of definitions, and is not important. The word "anticline" will serve as a name for the vein-form if properly limited and if no conclusion is drawn from the use of the word that is not justified by its application here. The word "anticline," geometrically speaking, implies the existence of one or two "synclines" or "troughs" lying laterally with it and having the same direction. Nothing of this kind is shown by the evidence in this case; no synclines accompany the anticline. (Lindley on Mines, Section 312.)

At this point an occasion offers to suggest a danger. Whatever result may be reached in this case, it must be based upon an incomplete presentation of evidence. Should it develop in the later mining history of the Tonopah District that the conclusions of fact in this case are wrong, the error should be excused for this reason.
1141 The geology of this case is confined to a limited area consisting of the West End, MacNamara, and MacNamara Extension Claims, a considerable part of the Curtis and Eureka Claims, and a very small portion of the Valley View and California Claims, covering an area of less than a tenth of a square mile, though it is apparent that the vein has a much greater sweep and that certain geological features of the controversy involve a large part of the developed portion of the Tonopah District. One of the witnesses for the West End upon being asked how many veins in the West End

Claim named, among others, the Lower Contact Vein, but no evidence was given descriptive of it or of its relation to the West End MacNamara Vein, yet in one of the arguments is found this significant language: "* * * The Lower Contact Vein, which is not involved here, but exists, as has been testified here in evidence, where probably a similar condition exists * * *." (Lindley's Argument 30.) Several other veins were referred to. (Searls, 985.) It may be that every vein named during the trial bears a geological relation to the vein in controversy, and, as the Court is left by the evidence with the MacNamara-West End Vein dipping downward to the north beyond the MacNamara, it is left with the suggestion that development on that side shows something of the geological relation of this vein with others, especially as one attorney used the expression "under many other claims." (Lindley, 1128.) The Siebert Fault gets its name in this case from a fault of that name in the territory of the Tonopah Company, but no correlation of the two was demonstrated. The testimony in the case is voluminous, occupying 1130 pages of transcript, yet it is plain to be seen that it could have been much more extensive. All this is mentioned here as
1142 cautionary and as indicating how helpless we are in facing great geological problems.

Whether the word "anticline" is applicable here or not, the word "anticlinal" has a broader meaning and is more applicable. It is defined: "Inclining or dipping in opposite directions." "Anticlinal axis" is defined: "A line from which strata dip in opposite directions, as from the ridge of a roof." The MacNamara-West End Vein is anticlinal, using the word liberally; and, if so, it has presumably, an anticlinal axis. As a proposition of law the plaintiff company holds that if this is true, there can be no extralateral rights, because there is no true apex, as the existence of an apex involves the existence of a terminal edge; that there can be no terminal edge if the vein goes up one slope, turns over, and goes down the other. This feature of the case is so momentous that it must be decided as a question of fact first to what extent an anticlinal axis actually exists.

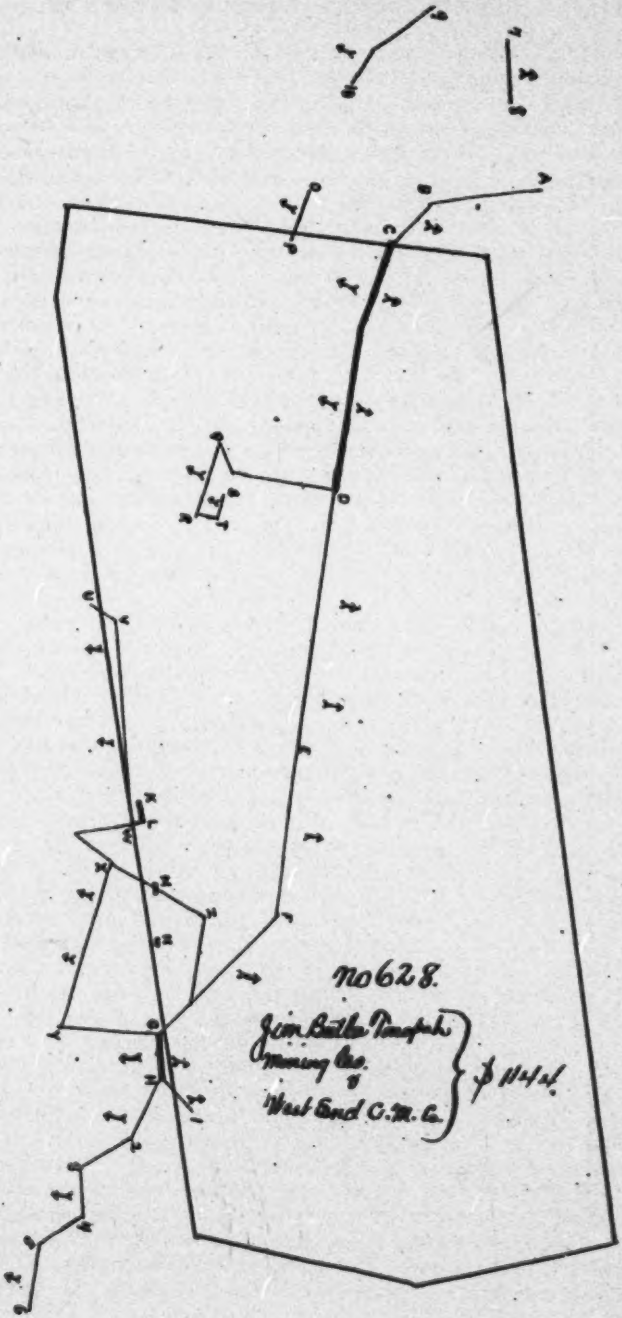
The West End model, upon a scale of "one inch equals forty feet," shows the vein for a length of 2000 feet. In this length is 560 feet of anticlinal axis, and 1440 feet showing no union of the slopes of the vein. In other words a united crest of the vein exists for 560 feet in a length of 2000 feet, or for a little over one fourth of the whole, or 28%. The vein continues on about one hundred feet farther into the California than is shown on this model. (Finch, 651, 689; Siebert, 746.) This reduces the percentage of axis to 27%; and if it continues on farther westerly the percentage of actual axis is correspondingly lowered.

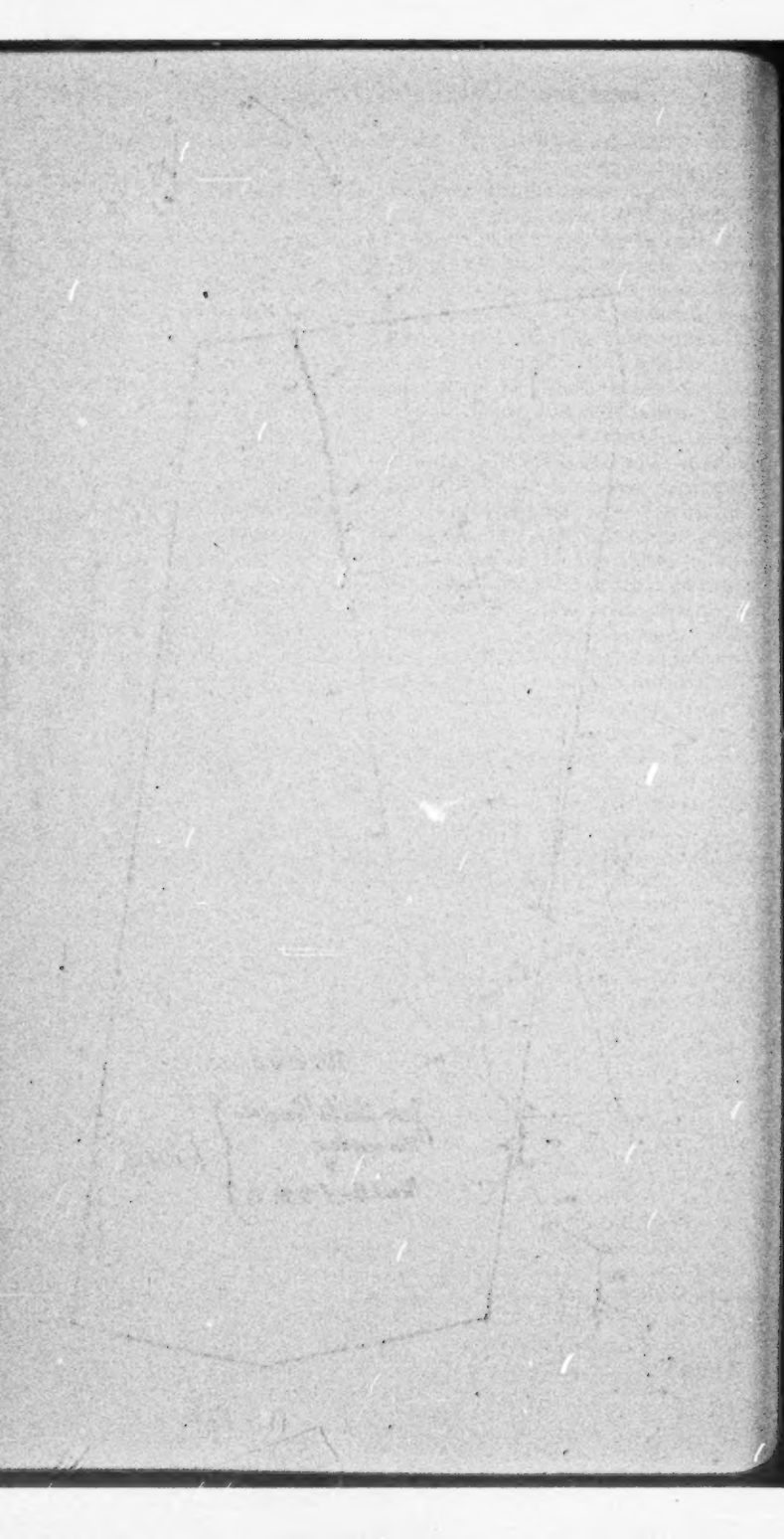
The Butler model upon the same scale shows the vein for
1143 a length of 1760 feet, in which distance 640 feet of united crest is shown, or rather assumed to be shown, and 1120 feet is apparently open. The axis, according to this model, is 36.4% of the length of the vein; but this model includes very little of the vein in the ground of the Tonopah Company. The Butler large map, Ex-

hibit 1, shows a united crest of 600 feet in a length of 1800 feet, or 33.3%.

Hereafter in this discussion a diagram marke[illegible]page 8 will be referred to. It is not drawn to scale and is a little out of proportion in places, but is accurate enough to serve the purpose for which it is used. It is based upon the West End model, because that model shows a united crest of the vein in one more place than does the Butler model. The lines shown on the diagram are, with the exception of a few whose meaning is evident; those joining points on the highest parts of the slopes of the vein. The line ABCDEFGH is a continuous "high" line approximately 1440 feet long, all but 480 feet on the south slope and all but about 430 feet in the West End Claim. The line CDEFG, a part of the above line, is a continuous "high" line about 1100 feet long, all in the West End Claim, and all on the south slope except 360 feet, which is the anticlinal axis part of this line in that claim. The lines ST, UVW, and XY are lines on the northern slope joining the highest points of the vein on that slope, and are not far from parallel to the "high" line CDEFG on the opposite slope; they contain no part of the anticlinal axis. The line H-6 is also on the north slope, continuing the line CDEFG to the west, and containing no part of the axis. The line 7-8 may safely be considered as a continuation of the long south slope line to the east, and is not a crest line.

[Here follows diagram marked page 1144.]


No 628.
Jim Butler Tonopah Mining Co. of West End C. M. Co.
N 1/2



1145 The lines OP and 9-10 are apparently on the north slope and fairly parallel to the line 7-8-BCD, but they are probably no part of the West End-MacNamara Vein. (Searls, 967, 969.)

Between VW on the north slope and DEF on the south slope, there is a union of the two slopes of the vein at KL for 40 feet, a liberal estimate, though one of the witnesses for the Butler gives the distance as 120 feet. Between the line XY on the north slope and FG on the south slope, there appears to be a union of the vein slopes at M for twenty feet, another liberal estimate. Between these two lines, there is also at N, as shown by the West End model, a detached portion of the vein not connected by workings on the vein with any other portion of it but higher than either FG or XY. The three lines KL, M, and N probably represent fragments of an anticlinal axis that once existed.

Before proceeding farther it must be noted that the models are "negatives,"—that in general what appears on them as solid represents space underground, stopes, drifts, crosscuts, winzes and raises, and that what appears upon them as space represents solid rock in the larger areas and pillars in the stopes, which condition adds a good deal of difficulty to the making of estimates and the measurements of lines, especially in the area containing the lines KL, M and N. No doubt the vein quartz extends above the "high" lines described above, and no doubt the vein quartz extends east and west of points where the vein shows in drifts, crosscuts, winzes and raises. All this presents no serious difficulty, however, except in the vicinity of KL, M and N. The lines on the diagram are drawn as straight lines between the pairs of points, and of course are only approxima-
1146 tions; but they are reasonably close to the truth.

Between the lines 7-8 and 9-10 is no sign of an anticlinal axis. The vein workings represented by them are much higher in elevation than what appear to be the corresponding workings west of them because of the influence of the Buried Fault, which passes between the points 8 and A on the south slope and 10 and O on the north slope. The Edwards Fault, whose effects are the most extensive of any of the faults that occurred in the area under discussion, passes between the points R and V on the north slope. It destroyed the vein between these points, but on the south slope its action was not sufficient to break the continuity of the vein along the line DEF, though it depressed the vein and contributed to its non-existence above the 400 level to any considerable extent between D and E, this effect extending westerly probably to F and Z.

During the argument a certain word was given unusual prominence, the word "obvious," in contrast with which, its newly coined antonym "subvious" demanded marked attention. (Alling's argument, 141; Lindley's argument, 34, 84.) "Obvious" is a good word.

The discussion of the lines of the diagram brings out something obvious. In the western territory it is obvious that the line H-6 is an apex. Its length was not clearly shown by the evidence, but it is more than 600 feet. From it as a terminal edge the vein dips to the north. It is equally obvious in the eastern territory that the lines 9-10 and O-P are apices, whether the workings they represent are a

part of the MacNamara-West End vein or not. If not, it is obvious that the lines 7-8 and BC are apices; and if so, they are still apices, controlling 360 feet of the vein, from which the vein
1147 dips to the south. It is obvious that the line DE represents an apex, from which the vein dips to the south; and it is obvious that ST is an apex from which the vein dips to the north. It is obvious that EF and FG are apices, except as interfered with by the lines KL, M and N; and that VW and XY represent apices except as interfered with by the same lines. From E and FG the vein dips south, and from VW and XY the vein dips north. The only "subvious" place is the region between EFG on the south and VWXY on the north, extending from K to G. On the Butler model this region is 520 feet long, of which all but 120 feet along where the crest line is supposed to be is space, that is, rock, the 120 feet being represented by the line KL. On the West End model this region is 440 feet long, of which 100 feet appears to be along the crest line, in three parts, 40 feet, 20 feet, and 20 feet long respectively, represented by the lines KL, M and N, one of which, N, is a doubtful piece. On the Butler map, Exhibit 1, this region is shown as 520 feet long, containing two crest connections, one at KL and one at N. It looks as though some one or more had taken it for granted that a crest line exists through this region for 520 feet or more, which brings out a curiously contradictory state of affairs, the West End people being willing to find the point at which the crest line crosses their north side-line in this region at a point 1142½ feet from their north-east corner and "in space." (Richardson, 47.) And yet they put up none of their famous "A Raises" in that region. The Butler people, to whom the anticlinal axis is vital, though they did considerable work in West End territory, left 520 feet of that axis in a
1148 very doubtful condition. One of the counsel for the plaintiff terms it "Terra incognita," in which, however, he includes the space from G to D, 760 feet in length down the supposed slope of the anticlinal axis. (Lindley's argument, 39.) Why was not exploration done in this "Unexplored country"? The answer is obvious; the burden rests upon the defendant to show an apex through doubtful territory. (Lindley's argument, 40.) Yet the same counsel says that his figure 147 represents the Butler contention. (Lindley's argument, 30.) Figure 147 is a colored picture of the Butler block model, of which something will be said later.

To sum up at this point, it may be said that on the south slope of the vein apices exist at 7-8, BC, DE, and H-1, that an anticlinal axis exists along CD and GH, and that an apparent apex along EFG is thrown into doubt by the unexplored condition from K to G. In West End territory are to be found 360 feet of anticlinal axis, 200 feet of apex, and 480 feet of apparent apex thrown into doubt by the unexplored condition from K to G, all on the south slope toward the Butler side-line except the 360 feet of axis.

Why devote so much attention to the lines described, as no issue of this kind was made by either side, the West End claiming its apex in the immediate vicinity of the anticlinal axis and the Butler claiming the non-existence of an apex in the same vicinity, but instead

thereof the crest of a roll? In other words, why go out of the issues as made during the progress of the case? The answer is composed of several reasons: 1. The discussion is within the issues as made by the pleadings. 2. Because the condition is an obvious one;
1149 3. Because the evidence introduced by both sides shows the condition described; 4. Because the condition described might have been the basis of a compromise; 5. Because the condition described tends to strengthen the position hereafter to be taken; 6. Because it correlates so well with one of the arguments in the case; (Dickson's argument, 30 et seq.) 7. Because it has an important bearing on the block model; 8. Because it gives this case a peculiar status of its own, bringing it somewhat into the ordinary apex class; 9. Because it casts upon the anticlinal axis the conception of a common apex, rather than merely the crest line of a roll.

The Butler Company offered a model in evidence generally referred to as the block model, which as noted above, has been said to represent its contention. As an exhibit this model is open to objection. It shows the present surface, consisting of Fraction Dacite Breccia to the west and south and Midway Andesite to the north-east. By removing the block representing the Breccia the Trachyte Surface is uncovered in the western part of the claim and the Midway Andesite surface in the north-eastern corner. By removing two more blocks representing the Midway Andesite above and the Mizpah Trachyte below, the vein itself is uncovered. All this is ingenious as well as artistic and of value as hereafter noted, but the vein is represented as a continuous sheet from a north-and-south vertical plane east of the West End Claim to a similar parallel plane west of it. (Lindley's argument, 134.) Mr. Lindley states in several places in his argument that the defendant company admits the continuity of the vein from the alleged apex to the ore bodies in dispute.
1150 (Lindley's argument, 8.) An admission of this kind was made, but it meant that one could start in the western ore-body in dispute and go up in the vein to the crest, and likewise from the eastern ore-body in dispute. It can mean no more, because the evidence will not permit a broader interpretation. (Finch, 671.) The vein does not exist in one unbroken sheet as depicted on the model, not, at any rate, as shown by present development. If, therefore, the Butler contention rests upon this model, it rests upon a foundation consisting largely of assumption, which, however, might have been turned into fact in part by proper development of the "Terra incognita." But as representing the Trachyte Surface the model has some value, especially in the western area. Such a surface must have existed; and in all likelihood the vein was exposed on this surface, using here the word "vein" in its broadest sense.

The evidence will show, especially that of the plaintiff, that its witnesses and attorneys used two conceptions of what the vein is. When the miners engaged in development work were told to follow the vein, and did so, it meant the solid quartz, with perhaps a showing of ore; but the witnesses, some of them, were quite positive that the vein includes much more than this. (Finch, 650; Searls, 981; Section Map G, Searls' 4.) The witnesses Finch and Searls and some

others include within their conception of the vein the "halo," or "stringer zone" or "streamer zone," which is no doubt geologically correct.

The defendant company claims two apices along the anticlinal axis, one for the north-dipping vein and one for the south-
1151 dipping vein. The latter vein, according to this theory apexes along the line where it abuts against the north-dipping vein, while the former apexes along an irregular line above the other vein as indicated by the quartz exposures in the "A Raises." The finding has already been made that there is but one vein, which, having disposed of the two-vein theory, now requires a consideration of what the "A Raises" do show. The plaintiff's witnesses admit the presence of bodies of quartz in these raises, some of the bodies of good size and considerable length; but they include them in the "Stringer Zone" of the vein, or its "Halo." Some of these are large, from three to five feet in thickness, which, were it not for inescapable comparison with the immense quartz bodies in the MacNamara-West End Vein itself, would never be termed "stringers." The larger ones are probably not stringers, geologically or otherwise; they are not part of the "Stringer Zone," but are part of the "Halo," the distinction being readily grasped; that is to say, they constitute an upward extension of the main vein toward the surface.

They follow to some extent, though not very closely, a gouge hanging wall, which the West End people assert is the hanging wall of the north-dipping vein, but which the Butler people ascribe to the Siebert Fault. This interesting and evidentially conspicuous phenomenon received some rather strong jolts on the rebuttal (Wiley, 1100; Winchell, 1119); but hardly enough to jolt it out of the case. That it exists, or something of the kind exists, was proven. It is probably a group of faults, rather than one great fault, easily correlatable with a great fault in the Tonopah Company's territory.
1152 One distinguished witness called it eccentric and said it was subject to undulations. (Lawson, 1031, 1060.) It had the effect of shearing the "halo" on the north side and of lowering the Mizpah Trachyte surface on that side, at least in the vicinity of the anticlinal axis, from which it may safely be inferred that the "halo" was once in a much more regular condition than at present, much less broken and crushed, and much more extensive. As the Mizpah Trachyte Surface exists now, the halo reaches it. This is illustrated on West End cross sections B, G and D, and by the Section Maps corresponding to glass sections 1, 3 and 4; and is strongly suggested by all the other Section Maps corresponding to the glass sections, which show the trachyte over the vein to be very thin. As the Mizpah Trachyte Surface existed before affected by the faults, the quartz of the halo reached it, because the halo must have been more extensive then than now and must have been carried down on the north with the trachyte. Therefore, if the vein is referable to the present Mizpah Trachyte Surface, it has outcrops of quartz on that surface; if referable to the Mizpah Trachyte surface before the faulting, it had outcrops of quartz on that surface. The models and section maps indicate very strongly that the halo reached the Original Sur-

face. The evidence is conclusive that when the fissures were formed in which, or associated with which, the vein is found, intense shattering occurred along the anticlinal axis, especially under the crest. Whatever caused the formation of the fissures, its action was far-reaching enough to create sub-parallel fissures. (Lawson, 1000.)

There are evidences of three of these in this case, and perhaps
1153 more, two of which attain to the dignity of veins, and they are workable veins, that is, they contain ore of commercial value. One of them, the Fraction Vein, is important enough to be a bone of contention in another suit. Its crevice was undoubtedly a channel of circulation that reached the surface, through which channl the "ascending magmatic emanations" sought escape. The same may be said of the South Vein. It is a striking fact that both these branch veins rise on their dip into an area which would include also the quartz bodies in the "A Raises," unless they crossed each other, which is very improbable. This area may be assumed to lie on the original surface, and was a venting ground of this great vein and its branches. But are the veins in the "A Raises" comparable with the Fraction Vein? They are of good size, some of them probably as thick as the Fraction Vein in parts of its course. They contain ore. (Bradley, 316, 331, 338.) They are respectable and probably were more so before the playful Siebert Fault came their way. The quartz in them is not oxidized, which fact might argue against their having reached a surface; but half a dozen explanations can be offered against any such conclusion, one of which is that unoxidized veins are often found that undoubtedly reached a surface when forming, perhaps some in the Tonopah District. Before leaving this phase of the case, attention should be called to what lies east of the line "S-S" on Defendant's Exhibit D. (Searls, 979.) This is a map of the 400 level of the West End, just under which it is claimed the toe of the anticline is to be found; and everything east of the line "S-S," the toe-line, is in the halo, which, scaled
1154 on the map, is found to extend away from the main vein easterly about two hundred feet, and above it, and scaled on the model, 100 feet. This indicates the strength and continuity of the halo quartz where the Siebert Fault's influence was not great; and what the extent of the halo quartz was before it was sheared and crushed by the fault.

If the halo is to be included in the vein, and geologically it should be, this vein then reaches now and did reach all the surfaces to which the apical facts are referable. It has, therefore, along its crest and extending above the anticlinal axis of the united main quartz bodies, a condition of things that may well serve as a terminal edge under the many peculiar circumstances and facts of the case. And let it be kept in mind here that this sort of geological terminal edge need be applied at the very most only to the 360 feet of it extending west from the easterly end-line of the West End Claim as against the remainder of its length in that claim, said in the answer to be 1175 feet; and in all it need be applied to only 560 feet of crest line in a total length of 2000 feet, or more strictly speaking, to only 480 feet of crest line, for the remaining crest line or anticlinal

axis seems to be assumed by both sides, which the halo may as safely be assumed to accompany, both assumptions operating together, the habit of the vein in the assumed territory being reasonably inferable from its habit in known territory and under known conditions.

Two more questions of fact should be disposed of.

1155 It was very strongly urged on behalf of the plaintiff company that this vein has a rolling habit. Section G is offered as rather conclusive on this point. This section is open to criticism, not as to its correctness, but as to its location. It is taken across that part of the vein where the dip is the slightest, or very nearly the slightest, and where the north slope is largely absent, for which reason it is hardly a fair illustration of the habit of the whole vein, as it gives less prominence to the great ridge the vein itself exemplifies than it should. The vein is very irregular in size and very much distorted and broken, but it is almost free of rolls, having only two worthy of notice, one easily accounted for as a phenomenon of junction with the Fraction Vein and the other as a result of a number of small faults lying close together.

Much time and attention was given to the question of strike. As a matter of common sense rather than technical mathematics the strike of the vein as a whole is easterly and westerly, and the strike of its two slopes, assumed for the purpose to be separate veins, is as claimed by the West End. Its so-called mathematical strike is rather uncertain, depending on how far into the California the selected northerly point is taken; and if the vein may be assumed to be extending westerly in that claim of in the Extension ground, which some of the witnesses strongly hinted, even the mathematical strike may be swung well into an easterly and westerly approach to parallelism with the general strike claimed by the West End people. (Juessen, 203; Chandler, 258, 259; Searls, 983.)

Now the questions of law. Can a vein have extra-lateral

1156 rights in two opposite directions? Or to express it more carefully, can extralateral rights extend downward from an anticlinal axis or common apex of a vein in a given claim beyond both side-lines of the claim? The answer depends upon the peculiar facts of the case; and in this instance, because of those peculiar facts, the vein, though one, being practically more two than one, they can; or, treating it as one vein for both theoretical and practical purposes, a condition exists along its crest or axis which gives to the vein, considered broadly and as a whole, a terminal edge at the summit or highest point or line of highest points where the vein reaches most closely to the surface, making that line of highest points a true apex for the whole vein, from which apex the vein can be followed downward both northerly and southerly.

Can a secondary vein have a southerly extending extralateral right, if the primary vein, or discovery vein, has its extralateral right extending northerly? Counsel for the Butler Company holds that, under the two-vein theory of this case, no extralateral right to the south can be exercised, because the extralateral right predicated on the discovery vein flows to the north. (Lindley's argu-

ment, 158.) This contention is fully and conclusively answered by counsel for the West End. (Dickson's argument, 14 et seq.; Alling's argument, 160 et seq.)

Is the West End Claim entitled to any extralateral rights, its west end-line being a broken line? The rule probably is that for extralateral rights to flow from a mining claim, it must have unbroken and parallel end-lines, if the vein crosses the end-lines; or it must have unbroken and parallel side-lines if the vein
1157 crosses its side-lines. In this case the vein passes through the east end-line, which is unbroken, and passes out through the north side-line, having its length in the claim along and gradually approaching the side-line, which eliminates the side-line as a bounding line from which a limiting vertical plane might be dropped. The end-line being unquestionably the line from which the easterly limiting plane should be dropped and being unbroken, and the opposite limiting plane being necessarily parallel to it and fixed by the vein-crossing point on the side-line, it seems as though practically the west end-line has nothing to do with any extralateral right that may flow from the claim. However, the locator's contract with the government includes four covenants on the part of the locator, that he make a discovery of mineral in place, that he give notice of his claim, that he define his boundaries, and that his boundary lines conform to the requirements of the law, that is, they must be parallel and unbroken. If he observes these, the government not only gives him the land enclosed in his lines but the extralateral right. A strict application of this idea would bar the West End Claim from any extralateral right; but the law as applied by the courts is not so strict. (Shamel on Mining Law, 210; Lindley on Mines, Section 591, as controlled by reasoning in Section 582; Dickson's argument, 61 et seq.) Treating a part of the westerly end-line as converging, it has no application to the present facts of the case, as it passes west of all ore-bodies in dispute.

If the conclusion reached herein seems revolutionary, that from the apex or apices of one vein extralateral rights flow
1158–1163 downward across both of its side-lines, attention should be given to the words of former Chief Justice Beatty of Nevada:

"We are willing to admit that cases may arise to which it will be difficult to apply the law; but this only proves that such cases escaped the foresight of congress, or, that although they foresaw the possibility of such cases occurring, they considered the possibility so remote as not to afford a reason for departing from the simplicity of the plan they chose to adopt."

It is easy to realize that the condition described in this opinion is one that escaped the foresight of congress and is also exceedingly remote from the simplicity of the plan they chose to adopt; yet the law must be applied to it, the law in which congress used the expression "exclusive right of possession and enjoyment * * * of all veins, lodes, and ledges throughout their entire depth, the top or apex of which lies inside of such surface lines extended

downward vertically, although such veins, lodes or ledges *any* so far depart from the perpendicular in their course downward as to extend outside the vertical side-lines. * * * Note the plural of the word "side-lines."

This branch of the case is decided in favor of the defendant corporation. That is to say, the West End Consolidated Mining Company is the owner of the ore-bodies in dispute.

(Signed) MARK R. AVERILL,
District Judge.

Submitted March 31, 1915. Decided April 30, 1915. H. N., 293—'14. 2881 F2.

Endorsed: Filed Apr. 30, 1915. Robert G. Pohl, Clerk, by Lowell Daniels, Deputy.

Compared and Certified to as a true Copy.
H. R. MIGHELS,
Clerk Supreme Court, Nevada.

* * * * * * *

1164 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Findings of Fact and Conclusions of Law.

This cause, having been called regularly for trial on the 8th day of December, 1914, before the Court (a jury trial having been expressly waived, as appears from the minutes of this court); and Curtis H. Lindley, Esq., Hugh H. Brown, Esq., W. E. Colby, Esq., and J. H. Evans, Esq., appearing as attorneys for the plaintiff, and Peck, Bunker & Cole, Horatio Alling, Esq., Cheney, Downer, Price & Hawkins, Dickson, Ellis, Ellis & Schulder, and H. H. Atkinson, Esq., appearing for defendant; and the trial being proceeded with and concluded under and pursuant to a certain stipulation entered into between the respective parties, which said stipulation is as follows, to wit:

1165 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

No. 2999.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Stipulation.

It is stipulated and agreed between the parties hereto as follows:

I.

That the motion of Plaintiff heretofore made to file an amendment to its complaint, amending Paragraph VII of said complaint and Paragraph 3 of the Prayer of said complaint may be granted and said amendments or an engrossed amended complaint embodying said amendments may be filed as of the date of this stipulation:—that the Answer of the Defendant to the original complaint shall be deemed and taken as the Answer to the amended complaint and the replication heretofore filed shall stand as a replication to said Answer; subject to all rights of amendments by permission of the Court.

II.

The title, ownership and right of possession to the ore bodies in dispute shall be first tried and determined by the Court before Plaintiff shall be called upon to introduce evidence as to the tonnage and value of ore extracted by defendant. The issues raised by said amended complaint, answer and replication shall be tried in the following order:

As by said pleadings it is admitted that Defendant has been carrying on mining operations and extracting ore from underneath the surface of the Eureka and Curtis mining Claims, owned by the Plaintiff, the Defendant shall proceed to introduce its testimony justifying its rights to so mine and extract said ores. Plaintiff shall thereupon introduce its testimony in opposition to Defendant's and Defendant shall thereupon rebut the same. After the evidence has been fully taken in behalf of both parties on the issue as to title, ownership and right of possession, and argument thereon had, such issue shall thereupon be submitted to the Court for its finding and decision.

1166 III.

In the event that the Court finds in favor of plaintiff on the issue of title, the question of the tonnage and value of the ores claimed to have been extracted by Defendant from underneath

the surface of Plaintiff's mining claims and all other matters pertinent to that issue shall be brought on for hearing and trial by the Court by either party on five days' notice one to the other. Plaintiff first introducing testimony, Defendant to follow, and Plaintiff to close with its rebuttal. In determining the tonnage and value there shall be included all such ores extracted and removed by Defendant underneath the surface of Plaintiff's mining claims prior to the commencement of this action, as may by the Court be determined to have been the property of Plaintiff, and shall also include all ore extracted and removed by Defendant from such property since the commencement of this action, which shall be adjudged to be the property of Plaintiff, and up to and including the date of the trial of such issue of tonnage and value, findings of fact and conclusions of law, embracing all the issues in the case, shall be signed and filed, and judgment therein shall be entered.

IV.

In the event said Court shall determine said issue of title in favor of Defendant, findings of fact and conclusions of law shall be filed and judgment therein entered.

V.

Nothing in this stipulation contained shall be construed as a waiver on the part of either party of their respective rights to move to vacate or set aside any judgment which may be entered in this action, or the findings and conclusions of law made by the Court; or to apply for a new trial, or to appeal from said judgment or to take any steps in regard thereto as the respective parties may be advised.

VI.

Upon demand made in that behalf by Plaintiff, at any time subsequent to the announcement by the Court of its Decision on the issue of title, if such decision be in favor of Plaintiff, the Defendant will permit Plaintiff, its attorneys and an assistant to be nominated by Plaintiff, to inspect and take copies of all entries in the books of Defendant, relating to the tonnage and value of said ores, and to inspect and take copies of all assay sheets, memoranda of assays, maps, and other data, showing or tending to show the tonnage and value of said ores; and to give to said Plaintiff all information Defendant, its officers, and employees have in reference to said tonnage and values.

1167 VII.

In the event that said Court shall determine the issue of title in favor of said Plaintiff, and upon its announce- of such determination, the Court shall forthwith issue and set for hearing an order to show cause herein upon the application for a restraining order and

injunction filed herein by Plaintiff on the second day of December, 1914.

Dated at Tonopah, Nevada, December 7th, 1914.

CURTIS H. LINDLEY,
HUGH H. BROWN,
W. E. COLBY,
J. H. EVANS,
Attorneys for Plaintiff.
PECK, BUNKER & COLE,
HORATIO ALLING,
CHENEY, DOWNER, PRICE & HAWKINS,
DICKSON, ELLIS, ELLIS & SCHUDLER,
H. H. ATKINSON,
Attorneys for Defendant.

(Endorsed:) Filed Dec. 7, 1914. Robert G. Pohl, Clerk, by Lowell Daniels, Deputy.

And the Court having heard the proofs of the respective parties and considered the same, and the records and papers in the cause, and the arguments of the respective attorneys thereon, and the cause having been submitted to the Court for its decision, the Court now finds the following facts:

1168 *Findings of Fact.*

I.

That the Plaintiff, Jim Butler Tonopah Mining Company, at all of the times mentioned in the Complaint and the Amended Complaint herein, was, and is now, the owner and in possession of, and entitled to the possession of those certain patented lode mining claims situated, lying and being in the Tonopath Mining District, County of Nye, State of Nevada, known as and called respectively the Eureka lode mining claim and the Curtis lode mining claim; the said Eureka lode mining claim being a portion of United States Survey designated by the United States Surveyor General of the State of Nevada as Survey No. 2600; and the said Curtis lode mining claim being a portion of United States Survey designated by the United States Surveyor General of the State of Nevada as survey No. 2042.

II.

That the defendant, West End Consolidated Mining Company, is and it or its predecessors in interest continuously for more than thirteen years last past has been, the owner of, in possession of, and entitled to the possession of that certain lode mining claim situated in the Tonopah Mining District, Nye County, State of Nevada, known as and called the West End lode mining claim, being United States Survey designated by the United States Surveyor General for the State of Nevada as Survey No. 2024; that the Government of the

United States, by patent bearing date the 21st day of July, 1904, granted and conveyed said West End mining claim to the defendant's grantor and predecessor in interest, namely, the Tonopah Extension Milling & Mining Company, a corporation; that said mining claim is described in said patent as follows, to wit:

1169 Beginning at Corner No. 1, from which the south corner of Section 35 in Township 3 North of Range 42 Mount Diablo Meridian bears South 2 deg. 12 min. West 1248.6 feet distant.

Thence, first course, south 74 deg. 42 min. West 750 feet to Corner No. 2; 1406.8 feet to Corner No. 3.

Thence, second course, North 11 deg. 20 min. W. 301 feet to Corner No. 4.

Thence, third course, North 5 deg. 31 min. East 313.3 feet to Corner No. 5.

Thence, fourth course, North 74 deg. 6 min. East 749.9 feet to Corner No. 6.

Thence, fifth course, North 74 deg. 42 min. East 608 feet to Corner No. 7.

Thence, sixth course, South 83 deg. 58 min. East 134.5 feet to Corner No. 8.

Thence, seventh course, South 5 deg. 31 min. West 269.8 feet to a point from which discovery shaft bears South 74 deg. 42 min. West 204.5 feet; 590.7 feet to Corner No. 1, the place of beginning.

That prior to the issuance of said patent a valid discovery was made upon and within said West End Mining Claim, and a vein or lode of rock in place, bearing gold, silver, and other valuable metals was cut by and disclosed in the discovery shaft of said mining claim; that said vein or lode so cut and disclosed in said discovery shaft, at its top or apex, and on its course or strike, crosses the easterly end line of said West End mining claim, and thence, at its top or apex and on its course or strike, continues in a westerly direction within said mining claim, and between the side lines thereof, until it intersects, and at its top or apex and on its course or strike, crosses the northerly side line of said mining claim and so departs therefrom.

III.

That said Eureka lode mining claim adjoins and is contiguous to said West End mining claim upon and along the southerly side line of said West End mining claim, and that said Curtis lode

1170 mining claim adjoins and is contiguous to said Eureka lode mining claim upon and along the southerly side line of said Eureka lode mining claim.

IV.

That there is a vein or lode of rock in place, bearing gold, silver, and other valuable metals, which, at its top or apex, and on its course or strike, crosses the easterly end line of said West End mining claim 130 to 140 feet northerly from the southeasterly corner of said mining claim, and thence, at its top or apex, and on its course or

strike, continues westerly in said mining claim between the side lines thereof to a point on the northerly side line of said claim 1142½ feet westerly from the northeast corner of said claim measured along the northerly side line thereof, at which point the said vein, at its top or apex, and on its course or strike, departs from said mining claim, crossing said northerly side line. That said vein dips southerly, and in its downward course so far departs from the perpendicular as to pass beyond the southerly side line of said West End mining claim, extended downward vertically, and thence into and beneath the surface of the said Eureka lode mining claim and the said Curtis lode mining claim of the plaintiff company.

That the defendant is now, and at all of the times mentioned in the complaint and the Amended Complaint herein, was, the owner of, in possession of, and entitled to the possession of said vein in this finding mentioned and described throughout its entire depth between vertical planes, one drawn through the easterly end line of said West End mining claim continued in its own direction indefinitely southerly, and another drawn parallel thereto through a point on the northerly side line of said mining claim 1142½ feet westerly from the northeast corner of said mining claim, measured
1171 along the northerly side line thereof, continued indefinitely in its own direction southerly.

The said vein is more particularly described as follows:

The said vein does not on its upward course, or at its top or apex, outcrop or reach the present surface, but is covered or buried to a considerable depth by lava, locally known as and called "Midway" andesite, which, after the formation of the vein, flowed over the then surface of the territory in which the vein exists; that at and for a distance of 360 feet westerly from where said vein or lode crosses the easterly end line of said West End claim, which crossing is at a distance of 135 feet northerly from the southeast corner of said West End claim, there is a juncture or union between two limbs or sides of said vein, and from the summit of said juncture or union the downward course of one limb or side thereof is in a northerly direction, and the downward course of the other limb or side thereof is in a southerly direction; that there is a continuation upward from the summit of said juncture or union of said northerly and southerly dipping limbs or sides of said vein, of ore and silver-bearing quartz or rock in place for a distance from 20 or 30 to more than 100 feet, and to what was the surface before the same was buried beneath the said lava flow; that such ore and silver-bearing quartz were deposited where the same are now found at the same time and during the same period that the main vein below was created, and
1172 from mineral-bearing solutions having the same source; that the dip is fairly conformable and strike or course of such upward continuation of ore and silver-bearing quartz is conformable to the dip and strike or course of said northerly-dipping limb or side of said vein from the summit of said juncture downward, and the Court finds that said upward continuation is a part of said vein or lode; that thence westerly, and for a distance of 360 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein

do not unite or form a union or juncture in their upward course, but for that distance each of said limbs or sides has a separate and independent top or apex; that thence westerly, for a distance of 40 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein are again found in conjunction, as in the said most easterly 360 feet; that thence westerly, and until said northerly and southerly dipping limbs, sides, or slopes of said vein intersect with and cross said northerly side line of said mining claim, they do not unite or form a union or juncture in their upward course, but for that distance each of said limbs or sides has a separate and independent top or apex; that between said distance of 40 feet, where said northerly and southerly dipping limbs, sides, or slopes of said vein, as aforesaid, unite or form a union or juncture in their course upward, and said points on said northerly side line of said mining claim where, as aforesaid, said contra-dipping limbs, sides or slopes of said vein respectively intersect said side line and cross the same and so depart from said mining claim, there are two points at which it appears that said contra-dipping limbs, sides or slopes of said vein on their upward course approach closely to a juncture or union, but as to said contra-dipping limbs, sides, or slopes of said vein at said two points actually forming a juncture or union on their upward
1173 course, the evidence is meager and unsatisfactory; that the point where the said northerly dipping limb or side of said vein departs from the said mining claim through the northerly side line thereof is 1120 feet westerly from the northeast corner of said claim measured along the northerly side line thereof; that the point where said southerly dipping limb or side of said vein departs from said mining claim through the northerly side line thereof is 1142½ feet westerly from the northeast corner of said claim measured along the northerly side line thereof; that throughout said distance of 40 feet, where the contra-dipping limbs or sides of said vein are found in conjunction, as hereinbefore stated, there is a continuation upward from the summit of the juncture or union of said two limbs or sides of said vein of ore or vein quartz to what was the surface before the same was covered by the lava flow; that the dip or downward course of both the northerly and southerly dipping sides or limbs of the vein where the two are found in conjunction, as aforesaid, and also in the places w-ere each, as aforesaid, has its separate and independent top or apex, is regular and practically free from undulations; that the said southerly dipping limb or side of the vein in the easterly portion of the West End claim, that is to say, the easterly 360 feet thereof, has been developed from the top or summit of said juncture of said contra-dipping limbs to and beyond the southerly side line of said claim, or for a distance, measured on the slope or downward course of said southerly dipping limb or side, of 800 feet or thereabouts, the average dip there being 17 degrees from the horizontal; that the westerly portion, that is to say, the westerly 300 feet of said southerly dipping limb or side of said vein found in the West End claim, has been developed from its top to and be-
1174 yond the southerly side line of said claim, or for a distance, measured on its slope or downward course, of 1000 feet or

thereabouts, the average dip there being 30 degrees from the horizontal; that the average dip of said northerly dipping limb or side of said vein, so far as the same has been developed in its downward course, is 17 degrees from the horizontal; that said vein is a fissure vein; that there is a difference in the strikes or courses of said northerly and southerly dipping limbs of said vein of about 40 degrees; that at said places and throughout said distances, where said contra-dipping limbs of said vein are found to intersect and form a juncture, as aforesaid, there has been a mingling of the mineralizations of said two limbs of said vein within the angle beneath the juncture of the said two limbs; that at such places and throughout said distances the footwail of said two limbs of said vein, within the angle beneath their said juncture, by the process of replacement has been converted into mineralized quartz for considerable distances below said juncture, said replacement quartz extending from limb to limb.

That the shaft known as the McQuillan shaft was the discovery shaft of the West End mining claim; that said discovery shaft encountered and disclosed no vein or lode of mineral-bearing rock in place until, in its downward course, it cut and disclosed said northerly dipping limb or part of said vein; that said northerly dipping limb of said vein was cut and disclosed in said discovery shaft on the 3rd day of April, 1903.

V.

That all of the ores mentioned in the Complaint and in the Amended Complaint herein, as having been mined, broken down, extracted and removed by the defendant within the surface boundaries extended downward vertically of said Eureka and
1175 Curtis lode mining claims, were mined, broken down, extracted and removed by the defendant from said vein and between the extralateral planes described in the next preceding Finding.

VI.

That all of said ores mention- in the next preceding Finding, so as aforesaid mined, broken down, extracted and removed by the defendant within the surface boundaries of said Eureka and Curtis lode mining claims extended downward vertically were the property of, and were owned by, the said defendant at the time they were so mined, broken down, extracted and removed; that none of the said ores, so as aforesaid mined, broken down, extracted and removed by the defendant within the surface boundaries extended downward vertically of said Eureka and Curtis lode mining claims was, at the time they were so mined, broken down, extracted and removed, or ever was, the property of said plaintiff.

That said plaintiff has not suffered or sustained any damage in any form whatever by reason of any act of the defendant alleged in the Complaint or the Amended Complaint herein.

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VII.

That the defendant never threatened to, or intended to, or ever claimed the right to enter upon or under the surface of said Eureka lode mining claim or said Curtis lode mining claim, other than that part or portion thereof included within said vein or lode herein found to have its top or apex within said West End mining claim and which on its downward course passes into and beneath the surface of said Eureka and Curtis lode mining claims; and the defendant never threatened to, or intended to, or ever claimed the right to enter upon or mine or extract ores from said vein from beneath the surface of said Eureka and Curtis lode mining claims other than that
1176 part or portion of said vein between vertical planes, one drawn through the easterly end line of said West End mining claim extended in its own direction indefinitely southerly, and another, parallel thereto, through a point on the northerly side line of said West End mining claim 1142½ feet westerly from the northeast corner of said mining claim, measured along the northerly side line thereof, extended in its own direction indefinitely southerly.

Conclusions of Law.

From the foregoing Findings of Fact the Court makes the following Conclusions of Law:

I.

That at all of the times mentioned in the Complaint and the Amended Complaint herein, the defendant was and now is, the owner of, in possession of, and entitled to the possession of, all of the vein from which the ores were taken as alleged in the Complaint and the Amended Complaint herein, and as herein found, between vertical planes, one drawn through the easterly end line of said West End mining claim, continued in its own direction indefinitely southerly, and another, parallel thereto, drawn through a point on the northerly side line of said mining claim, 1142½ feet westerly from the northeasterly corner of said mining claim, measured along the northerly side line thereof, continued in its own direction indefinitely southerly.

II.

That said plaintiff has not suffered or sustained any damage in any form whatever by reason of any act alleged in the Complaint or the Amended Complaint herein.

1177 III.

That said plaintiff is not entitled to take anything by its said action; that the said defendant have and recover from said plaintiff its costs in the sum of ——.

IV.

That all restraining orders or interlocutory injunctions heretofore made or issued in said cause should upon entry of judgment be dissolved.

And judgment is hereby ordered entered accordingly.
Dated at Tonopah, Nevada, May 27th, 1915.

MARK R. AVERILL,
Judge of said District Court.

A true and correct copy of the original on file in my office.

H. R. MIGHELS,
Clerk Supreme Court of Nevada.

1177½-1182 [Endorsed:] No. 2999. In the District Court of the Fifth Judicial District of the State of Nevada, in and for the County of Nye. Jim Butler Tonopah Mining Company, a corporation, Plaintiff, vs. West End Consolidated Mining Company, a corporation, Defendant. Findings of Fact and Conclusions of Law. Filed May 27, 1915. Robert G. Pohl, Clerk, by Lowell Daniels, Deputy. Robert G. Pohl, Clerk, Nye County, Tonopah, Nevada.

* * * * * * *

1183 That thereafter on June third, 1915, said District Court made and entered its Judgment herein, and the Judgment Roll in said cause, with said Judgment thereunto attached, was made up and filed as follows:—

1184 In the District Court of the State of Nevada, Fifth Judicial District, in and for Nye County.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Plaintiff,

vs.

WEST END CONSOLIDATED MINING COMPANY (a Corporation), Defendant.

Complaint.

The plaintiff, Jim Butler Tonopah Mining Company, complains of the defendant, West End Consolidated Mining Company, and for cause of action alleges:—

I.

That the plaintiff, Jim Butler Tonopah Mining Company, is now and at all times since *on* or about October 1903, has been a corporation duly organized and existing under the laws of the State of Delaware, having its principal place of business in the City of Wilmington in said State, with power to own and operate mines, and during all of

said time has been and now is engaged in the carrying on of the business of mining in Nye County, State of Nevada.

That said plaintiff did, before commencing to do business in the State of Nevada, ever since has continued, and still continues to comply with all of the laws of the State of Nevada relating to foreign mining corporations doing business therein.

1185 II.

That the defendant, West End Consolidated Mining Company, is a corporation duly organized and existing under the laws of the State (formerly Territory) of Arizona, and said defendant has heretofore been and now is carrying on the business of mining in Nye County, State of Nevada, and that said County of Nye is the County in said State where the principal business of said corporation is conducted. That the said defendant has complied with the laws of the State of Nevada relating to foreign mining corporations doing business therein.

III.

That at all times herein mentioned the plaintiff has been the sole owner of and in the sole and actual possession, (except as hereinafter stated), and entitled to the immediate and exclusive possession of all those certain lots, pieces and parcels of land, together with the mines, lodes, ledges, veins and mineral deposits therein contained, situate, lying and being in the Tonopah Mining District, County of Nye, State of Nevada, described as follows:

First. That certain patented lode mining claim known as and called the Eureka Lode Mining Claim, being a portion of United States Survey designated by the United States Surveyor General for the State of Nevada as survey Number 2600.

Second. That certain patented lode mining claim known as and called the Curtis Lode Mining Claim, being a portion of United States Survey designated by the United States Surveyor General as survey Number 2042.

1186 That said Eureka and Curtis Lode Mining Claims are adjoining and contiguous to each other, and in connection with other properties adjoining and contiguous to said claims are, and at all times in this complaint mentioned were owned, possessed and worked by Plaintiff as one mine.

IV.

That within and upon said Eureka and Curtis Lode Mining Claims there were at all times mentioned in this complaint and now are situated certain lodes, veins and mineral deposits of great value, carrying gold, silver and other valuable metals.

V.

That the defendant, West End Consolidated Mining Company, at all times mentioned in this complaint was and now is in possession, claiming to be the owner of that certain Lode Mining Claim situated in said Tonopah Mining District, Nye County, Nevada, known as and called the West End Lode Mining Claim, being United States Survey designated by the United States Surveyor General for the State of Nevada as survey number 2024. Said West End Lode Mining Claim is contiguous to and adjoins said Eureka Lode Mining Claim, the property of this Plaintiff, as hereinbefore set forth. That within said West End Lode Mining Claim said Defendant has sunk certain shafts, winzes and other mine workings, and by means of crosscuts, winzes and other mine openings extended therefrom has passed outside of and beyond the boundaries of said West End Lode Mining Claim, and has entered upon and penetrated underneath the surface of the said Eureka and Curtis Lode Mining Claims, the property of this plaintiff.

1187

VI.

That by means of said mine workings so extended and made by said Defendant within and underneath the surface of said Eureka and Curtis Lode Mining Claims, the said Defendant has wilfully, wrongfully, unlawfully, fraudulently and secretly, and without the license, knowledge or consent of the Plaintiff, and continuously for more than a year last past, entered upon and broken into the said Eureka and Curtis Lode Mining Claims, the property of this Plaintiff, and has worked, mined and extracted ore from the lodes, veins and mineral deposits lying and embraced within vertical planes passed through the exterior boundaries of Plaintiff's said lode mining claims, and is now working, mining and extracting ore from Plaintiff's said mining claims, lodes, veins and mineral deposits, and from that portion of the ground embraced within said vertical planes passed through the exterior boundaries of Plaintiff's said lode mining claims.

VII.

Plaintiff further alleges that within one year last past, through the mining operations of defendant so conducted and carried on as aforesaid within the exterior boundaries of the mining ground of Plaintiff, to-wit, said Eureka and Curtis Lode Mining Claims, said defendant has mined and extracted twenty-five thousand (25,000) tons of gold, silver and other mineral bearing ores then and there the property of this Plaintiff, and has willfully, unlawfully, and maliciously taken out, carried away and converted the same to its own use, without the consent or knowledge of the Plaintiff; that the value of said twenty-five thousand (25,000) tons of gold, silver and other

1188 mineral bearing ore so mined and extracted, taken out, carried away and converted, as aforesaid, was and is as Plaintiff is informed and believes the sum of Five Hundred Thousand ($500,000.00) Dollars.

VIII.

Plaintiff further alleges that defendant is now working and mining within the exterior boundaries of the lands and mining claims of Plaintiff hereinbefore described, and is now actually engaged in mining and extracting gold, silver and other mineral bearing ores from the veins, lodes and mineral deposits contained therein, and is extracting large quantities of valuable ores therefrom, the exact quantity of which Plaintiff is not able to state, but on its information and belief it alleges is something in excess of four thousand (4,000) tons per month, the exact value of which is difficult of ascertainment and estimation, and defendant does now claim the right and threatens to, and will, unless restrained by the order of this Honorable Court, continue said trespass and the mining and extracting of said valuable ores from Plaintiff's said mining ground and claims, to-wit, said Eureka and Curtis Lode Mining Claims, and from the veins, lodes and mineral deposits contained therein, and will mine and extract therefrom all the mineral deposits and ore therein contained, and will thereby continue to injure and waste Plaintiff's said mining property, and to destroy and deprive said mining land of all value.

IX.

That plaintiff has no means of ascertaining, and it is impossible to ascertain or measure the value or quantity of mineral bearing ores, or to estimate the pecuniary value thereof which will
1189 be taken as aforesaid, or which will be taken by the Defendant from Plaintiff's said mining ground and from Plaintiff's veins, lodes and mineral deposits, contained therein, and this Plaintiff cannot ascertain, and it is difficult, if not impossible, to ascertain the amount of pecuniary compensation which would adequately compensate plaintiff for the injuries and damages that Defendant now threatens to and will inflict upon Plaintiff and upon the mining grounds and properties of Plaintiff hereinbefore described. That said mining ground and properties of Plaintiff have no value other than for the veins, lodes and mineral deposits therein. Plaintiff alleges that unless restrained by the order of this Honorable Court, defendant will inflict upon Plaintiff, and upon the mining properties of Plaintiff, irreparable injury.

Wherefore, Plaintiff prays judgment against the Defendant—

(1) That defendant and its agents, servants and employees be enjoined from working, mining or entering upon any portion of Plaintiff's said properties, and the mining ground and claims hereinbefore described as owned and possessed by the Plaintiff, and the mine, veins, lodes and mineral deposits contained therein pending this action.

(2) That by a final judgment of this Court Defendant be perpetually enjoined from doing any of the acts above specified, and that all entries to any portion of Plaintiff's said mining prop-

1190 erties by Defendant, by means of any of the underground works of Defendant, be effectually closed by the order of this Court, at the expense of Defendant.

(3) That Plaintiff have judgment against Defendant for Five Hundred Thousand ($500,000) Dollars, and that said Judgment be trebled.

(4) That Plaintiff recover costs.

(5) That Plaintiff have judgment for such other and further relief against the defendant in the premises as is just and equitable.

CURTIS H. LINDLEY,
HUGH H. BROWN,
J. H. EVANS,
Attorneys for Plaintiff.

STATE OF CALIFORNIA,
City and County of San Francisco, ss:

Clyde A. Heller, being duly sworn, deposes and says:

I am an officer, to-wit, President of the Jim Butler Tonopah Mining Company, Plaintiff in this action. I make this affidavit for and on behalf of said Plaintiff.

I have read the foregoing complaint and know the contents thereof. The same is true of my own knowledge, except the matters therein stated on information and belief, and that as to those matters I believe it to be true.

CLYDE A. HELLER.

Subscribed and sworn to before me this 4th day of April, 1914.

[NOTARIAL SEAL.] EUGENE W. LEVY,
Notary Public in and for the City and County of San Francisco, State of California.

A true and correct copy.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

Endorsed: Mark R. Averill, District Judge. Filed April 6, 1914. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

1191 In the District Court of the State of Nevada, Fifth Judicial District, in and for Nye County.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Plaintiff,
v.
WEST END CONSOLIDATED MINING COMPANY (a Corporation), Defendant.

Answer.

Comes now the defendant above named, West End Consolidated Mining Company, and makes answer to the complaint of the plaintiff in the above entitled action, and for answer thereto:

I.

Admits the first, second and fifth paragraphs of said complaint.

II.

Answering the third paragraph of said complaint, this defendant admits that the said plaintiff is the owner, in possession and entitled to the possession, of the surface of the Eureka Lode Mining Claim and the Curtis Lode Mining Claim, mentioned in said complaint, and that each of said mining claims is patented, and that the same are adjoining and contiguous mining claims, but denies that said plaintiff is, or that it, or any of its predecessors in interest, ever was, the owner, in possession or entitled to the possession, of all
1192 mines, lodes, ledges, veins or mineral deposits beneath the surface of either of said mining claims; and to the contrary thereof this defendant alleges that there is found beneath the surface of each of said claims, and within the exterior boundaries thereof, extended downward vertically, a part or portion of a vein or lode of rock in place, bearing gold, silver and *and* other valuable metals; that no part of the top or apex of said vein or lode is found within the exterior boundaries, extended downward vertically, of either the said Eureka Mining Claim, or the said Curtis Lode Mining Claim, but that the top or apex of said vein or lode is found wholly within the surface boundaries, extended downward vertically, of the West End Mining Claim, mentioned in said complaint, and that this defendant is, and for many years last past continuously has been, the owner, in possession and entitled to the possession of said West End Mining Claim, and of said lode or vein, throughout its entire depth, so, as aforesaid, having its top or apex within the surface boundaries of the said West End Mining Claim, extended downward vertically. And denies that the said plaintiff is, or that it, or any of its predecessors ever was, the owner, in possession, or entitled to the possession, of any part of said lode or vein.

III.

Answering the fourth paragraph of said complaint, this defendant admits that within the said Eureka and Curtis Lode Mining Claims, there are certain lodes, veins and mineral deposits, carrying gold, silver and other valuable metals; but this defendant is informed and believes, and upon such information and belief alleges, that there is not, within the exterior boundaries, extended downward
1193 vertically, of either the said Eureka Lode Mining Claim, or the said Curtis Lode Mining Claim, any known vein, lode or mineral deposit, the top or apex of which is found within the surface boundaries, extended downward vertically, of either of said mining claims.

IV.

Answering the sixth paragraph of said complaint, this defendant denies that it has ever, at any time, wrongfully, unlawfully, fraud-

ulently or secretly, or without the license, knowledge or consent of said plaintiff, mined or extracted any ore from any lode, vein or mineral deposit, lying or embraced within vertical planes passed through the exterior boundaries of either the said Eureka Lode Mining Claim or the said Curtis Lode Mining Claim, except from the said lode or vein, so as aforesaid, having its top or apex within the exterior boundaries extended downward vertically of the said West End Mining Claim, and so, as aforesaid, owned and possessed by this defendant. And in like manner denies that it is now, or at the time of the commencement of this action was, working, mining or extracting any ore from either of the said mining claims of the said plaintiff, or from any lode, vein or mineral deposit therein, except from the said lode or vein, so as aforesaid having its top or apex within the surface boundaries, extended downward vertically, of the said West End Mining Claim, and owned and possessed, as aforesaid by this defendant.

V.

Answering the seventh paragraph of said complaint this defendant denies that within one year last past, or at any other time, or at all, this defendant has unlawfully, or maliciously, mined or ex-
1194 tracted, taken out, carried away, or *or* converted to its own use, 25,000 tons, or any other amount whatever, of gold, silver, or other mineral-bearing ores, which were the property of said plaintiff, of the value of $500,000.00 or of any value whatsoever. Admits that it has carried on mining operations within the exterior boundaries of the Eureka and Curtis mining claims, and in that behalf, alleges, that said mining operations have been prosecuted entirely upon said lode or vein so as aforesaid having its top or apex within the exterior boundaries, extended downward vertically, of the said West End Mining claim, and so, as aforesaid, owned and possessed by this defendant; that in said mining operations it has mined and extracted from said lode or vein beneath the surface of said Eureka and Curtis mining claims not to exceed 23,341 tons of ore, the aggregate net value of which did not exceed $204,300.00, which amount and value comprise all the ores extracted by the defendant from the premises in controversy in this action which were or could be milled or treated at any profit.

VI.

Answering the eighth paragraph of said complaint, this defendant admits that at the time of the commencement of this action, it was working, and actually engaged in mining and extracting gold, silver and other mineral-bearing ores, contained and found within the exterior boundaries, extended downward vertically, of plaintiff's said mining claims, namely the said Eureka Lode Mining Claim and the said Curtis Lode Mining Claim, but alleges that all of its said work of mining and extraction of ores, or other material, was confined to, and did not extend beyond, that portion of said lode or vein so found

beneath the surface and within the exterior boundaries, ex-
1195 tended downward vertically, of the said Eureka Lode Mining Claim and the said Curtis Lode Mining Claim, so as aforesaid having its top or apex within the surface boundaries, extended downward vertically, of the said West End Mining Claim, owned and possessed, as aforesaid, by this defendant.

Further answering said eighth paragraph, this defendant denies that it ever claimed the right, or threatened to, or that unless restrained by the order of this Honorable Court it threatened, intended to, or would have, trespassed upon either of the said mining claims of the said plaintiff; and in like manner denies that it ever did, or would have threatened, or intended to, or would have, but for said restraining order, mined or extracted any ore, or other material from either of said mining claims, or from any vein, lode or other mineral deposit, contained or found within the exterior boundaries, extended downward vertically, thereof, except from that portion of said vein or lode, so as aforesaid found within the exterior boundaries, extended down vertically, of the said Eureka Lode Mining Claim and the said Curtis Lode Mining Claim, and having, as aforesaid, its top or apex within the exterior boundaries, extended downward vertically, of the said West End Mining Claim, and owned and possessed by this defendant as aforesaid.

And this defendant, further answering the said eighth paragraph, denies that it ever did, or ever threatened, or intended to, injure or waste either of said mining claims of said plaintiff, or to destroy or deprive said mining land of said plaintiff of any value whatever.

VII.

Answering the ninth paragraph of said complaint, this defendant alleges that it never has, at any time, nor has it ever threat-
1196 ened or intended, at any time, to take any mineral-bearing ores, or other thing whatsoever, from any of plaintiff's said mining ground, or from any vein, lode or mineral deposit found or contained within the surface boundaries, extended downward vertically, of either the said Eureka Lode Mining Claim, or the said Curtis Lode Mining Claim, except from that portion of said vein or lode, so as aforesaid having its top or apex within the exterior boundaries, extended downward vertically of the said West End Mining Claim.

Further answering said paragraph, this defendant denies that it ever has, or has ever threatened, or intended to, injure or damage, in any manner whatever, any mining ground or property whatever of said plaintiff, and denies that unless restrained by the order of this Honorable Court it threatened, or intended to, or would have, inflicted irreparable, or any, injury whatever upon said plaintiff, or any of said plaintiff's property.

VIII.

And for a further answer to said complaint, this defendant alleges that it now is, and it and its predecessors in interest, continuously for

more than thirteen years last past has been, the owner of, in the possession of, and entitled to the possession of the West End Mining Claim, mentioned in said complaint, and of all veins or lodes (throughout their entire depth) of rock in place, bearing gold, silver or other valuable metals, the tops or apices of which are found within the exterior boundaries, extended downward vertically, of the said West End Mining Claim; that the Government of the United States, by patent bearing date the 21st day of July, 1904, granted and conveyed said West End Mining Claim to this defendant's grantor and predecessor in interest, namely, the Tonopah Extension Mill-
1197 ing & Mining Company, a corporation; that said mining claim is described in said patent as follows, towit:

Beginning at Corner No. 1, from which the south corner of Section 35 in Township 3 North of Range 42 Mount Diablo Meridian bears South 2 deg. 12 min. West 1248.6 feet distant.

Thence, first course, south 74 deg. 42 min. West 750 feet to Corner No. 2; 1406.8 feet to Corner No. 3.

Thence, second course, North 11 deg. 20 min. W. 301 feet to Corner No. 4.

Thence, third course, North 5 deg. 31 min. East 313.3 feet to Corner No. 5.

Thence, fourth course, North 74 deg. 6 min. East 749.9 feet to corner No. 6.

Thence, fifth course, North 74 deg. 42 min. East 608 feet to Corner No. 7.

Thence, sixth course, South 83 deg. 58 min. East 134.5 feet to corner No. 8.

Thence, seventh course, South 5 deg. 31 min. West 269.8 feet to a point from which discovery shaft bears South 74 deg. 42 min. West 204.5 feet; 590.7 feet to corner No. 1, the place of beginning.

That there is a vein or lode of rock in place, bearing gold, silver and other valuable metals, which, at its top or apex, and on its course or strike, crosses the easterly end line of said West End Mining Claim, and thence, at its top or apex, and on its course or strike, continues westerly between the side lines of said mining claim, for a distance of, to-wit: 1175 feet.

That said vein dips in a southerly direction, and in its course downward so far departs from the perpendicular as to extend outside and beyond a vertical plane, drawn downward through the southerly side line of said claim, and continues in its downward course, under and beneath the surface of the said mining claims of said plaintiff, namely, the Eureka Lode Mining Claim and the Curtis Lode Mining Claim.

That this defendant is, and for many years last past has been, the owner of, in the possession and entitled to the possession of said vein or lode, throughout its entire depth, between planes, one
1198 drawn through the easterly end line of said claim, continued indefinitely in its own direction southerly, and another drawn parallel thereto, through a point, to-wit: 1175 feet westerly thereof, continued indefinitely, as aforesaid.

That this defendant has never mined or extracted any ore or mineral-bearing earth or rock, within the surface boundaries, extended downward vertically, of either the said Eureka Lode Mining Claim or the said Curtis Lode Mining Claim, except from that portion of said vein or lode, so as aforesaid having its top or apex within the said West End Mining Claim, which, in its downward course, lies within the exterior boundaries, extended downward vertically, of the said Eureka Mining Claim and the said Curtis Lode Mining Claim; and this defendant alleges that all the ore and mineral-bearing earth or rock, which it has mined from said vein or lode (and within the premises in controversy in this action), beneath the surface of the said Eureka Lode Mining Claim and the said Curtis Lode Mining Claim, which was, by this defendant, milled or treated (or which could be, by any one, milled or treated at any profit, after the same had been mined and extracted), did not exceed 23,341 tons the aggregate net value of which did not exceed $204,300.00.

This defendant further alleges that the mining and extraction by it of said ore from that portion of said vein lying within the exterior boundaries, extended downward vertically, of the said Eureka Lode Mining Claim and the said Curtis Lode Mining Claim, and which has its top or apex within the exterior boundaries, extended downward vertically, of the said West End Mining Claim, *and* as aforesaid, and none other, constitute the pretended wrong and injuries complained of by plaintiff in its said complaint.

1199 IX.

And further answering said complaint defendant alleges that all of the ores mined, extracted and removed by defendant within the surface boundaries extended downward vertically of said Eureka and said Curtis Lode Mining Claims as alleged in the complaint, were mined and extracted from a lode, ledge or vein no part of the top or apex of which was or is to be found within the surface boundaries of said Eureka and said Curtis Lode Mining Claims extended downward vertically; that at all times mentioned in the complaint and for a long time theretofore the defendant was, has been and now is the owner of, in possession of, and entitled to the possession of that part or portion of said lode, ledge or vein so situate within the surface boundaries extended downward vertically of said Eureka and said Curtis Lode Mining Claims from which said ores mentioned in the complaint were by the defendant so mined, extracted and removed.

Wherefore, having fully answered, this defendant prays that it be hence dismissed with its costs in this behalf incurred, and that said plaintiff take nothing by its said action.

PECK, BUNKER & COLE,
HORATIO ALLING,
DICKSON, ELLIS, ELLIS & SCHULDER,
CHENEY, DOWNER, PRICE & HAWKINS,
Attorneys for Defendant.

A true and correct copy of the original on file in my office.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

1200 STATE OF CALIFORNIA,
County of Alameda, ss:

L. W. Bennett, being duly sworn, on oath deposes and says: I am an officer, to-wit, the Secretary of the West End Consolidated Mining Company, a corporation defendant in this action. I make this affidavit for and on behalf of said defendant.

I have read the foregoing answer and know the contents thereof. The same is true of my own knowledge, except the matters therein stated on information and belief, and that as to those matters, I believe it to be true.

L. W. BENNETT.

Subscribed and sworn to before me this 3 day of July, 1914.
[SEAL.] ANGUS CLARK,
Notary Public in and for the County of Alameda, State of California.

A true and correct copy.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

Endorsed: Mark R. Averill, District Judge. Filed July 6, 1914. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

1200½ Service of foregoing answer by copy admitted this 3d day of July 1914.

CURTIS H. LINDLEY,
HUGH H. BROWN,
Attorneys for Plaintiff.

It is hereby stipulated that the foregoing answer may be filed on July 6th 1914.

CURTIS H. LINDLEY,
HUGH H. BROWN,
Attorneys for Plaintiff.
PECK, BUNKER & COLE,
HORATIO ALLING,
DICKSON, ELLIS, ELLIS & SCHULDER,
CHENEY, DOWNER, PRICE & HAWKINS,
Attorneys for Defendant.

[Endorsed:] No. 2999, Dept. —. Copy. District Court, State Nevada, Fifth Judicial District, Nye County. Jim Butler Tonopah Mining Company, a Corp., Plaintiff, v. West End Cons. Mining Co., a Corp., Defendant. Answer. July 6, 1914. Robert B. Pohl, Lowell Daniel.

Peck, Bunker & Cole, Attorneys, 503 Syndicate Building, Oakland, Cal.; 910 Crocker Building, San Francisco, Cal.

1201 Copy.

In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

No. —.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Replication.

The plaintiff above named, Jim Butler Tonopah Mining Company, by way of its reply to the answer of the defendant, West End Consolidated Mining Company, alleges and denies as follows:

I.

This plaintiff denies that there exists within the boundaries of either the said Eureka or the said Curtis Lode Mining claims, and situated vertically beneath the surface thereof, any mines or lodes or ledges or veins or mineral deposits which are a part or portion of any vein or lode of rock in place bearing gold or silver or any other valuable metal or metals which has its top or apex situated either wholly or in part or at all within the surface boundaries, extended downward vertically, of said West End Mining claim and on the contrary this plaintiff alleges that there is not within the surface
1202 boundaries of said West End Mining Claim extended downward vertically the top or apex or any portion of the top or apex of any vein or lode which embraces or includes on its downward course any of the ore bodies in controversy in this action and this plaintiff further alleges that it is the owner and entitled to the possession of all mines, lodes, ledges, veins and mineral deposits, and portions thereof, situated vertically beneath the surface of said Eureka and said Curtis lode mining claims as more fully set forth in its complaint heretofore filed herein.

II.

Plaintiff denies that, in the prosecution of defendant's said mining operations, vertically beneath the surface of plaintiff's said mining premises, the defendant mined and extracted not to exceed twenty-three thousand, three hundred forty-one (23,341) tons of ore; plaintiff denies that the aggregate net value thereof did not exceed Two Hundred Four Thousand, Three Hundred Dollars ($204,300); and plaintiff denies that said alleged tonnage and value comprise all the

ores, extracted by defendant from vertically beneath the surface of plaintiff's said premises, which were or could be milled or treated at any profit. To the contrary, plaintiff alleges that said tonnage, so mined and extracted, by defendant from vertically beneath the surface of plaintiff's said premises, and which were and could be milled at a profit, far exceeded twenty-three thousand, three hundred forty-one (23,341) tons,—the exact tonnage being unknown to plaintiff,—and that the aggregate net value thereof far exceeded Two Hundred Four Thousand Three Hundred Dollars ($204,300),—the exact net value being unknown to plaintiff.

III.

Replying to Paragraph VIII of said Answer, plaintiff ad-
1203 mits that the United States Government, by Patent bearing date the 21st day of July, 1904, granted and conveyed said West End mining claim to the defendant's grantor and predecessor in interest, namely, the Tonopah Extension Milling & Mining Company, a corporation.

Plaintiff admits that said West End mining claim is described in said Patent as follows, to-wit:

Beginning at Corner No. 1, from which the south corner of Section 35 in Township 3 North of Range 42 Mount Diablo Meridian bears South 2 deg. 12 min. West 1248.6 feet distant.

Thence, first course, south 74 deg. 42 min. West 750 feet to Corner No. 2; 1406.8 feet to Corner No. 3;

Thence, second course, North 11 deg. 20 min. W. 301 feet to Corner No. 4.

Thence, third course, North 5 deg. 31 min. East 313.3 feet to Corner No. 5.

Thence, fourth course, North 74 deg. 6 min. East 749.9 feet to Corner No. 6.

Thence, fifth course, North 74 deg. 42 min. East 608 feet to Corner No. 7.

Thence sixth course, South 83 deg. 58 min. East 134.5 feet to Corner No. 8.

Thence seventh course, South 5 deg. 31 min. West 269.8 feet to a point from which discovery shaft bears South 74 deg. 42 min. West 204.5 feet; 590.7 feet to Corner No. 1, the place of beginning.

The plaintiff admits that the defendant now is, and with its predecessors in interest continuously for thirteen (13) years last past, has been, the owner of, in possession, and entitled to possession of said West End mining claim as above described; but plaintiff denies that the defendant, or its predecessor, now is, or ever has been, the owner, in possession, or entitled to possession, of all or any veins or lodes throughout their entire depth,—or any depth whatsoever be-
1204 yond the vertical boundary line planes, of said West End mining claim,—which veins or lodes have their tops or apices within said West End mining claim, or the vertical boundary line planes thereof; plaintiff denies that there are any veins or lodes or rock in place bearing gold, silver or other valuable metals, within

said West End mining claim, whose tops or apices are within the exterior boundary lines of the said claim produced vertically downward.

Plaintiff denies that there is a vein or lode or rock in place bearing gold, silver and other precious metals, or gold, or silver, or other precious metals, which at its top or apex, and on its course or strike, or on its course or strike, crosses the Easterly or any end line of said West End mining claim, and thence, at its top or apex, and on its course or strike, or on its course or strike, continues Westerly or in any other direction, between the side lines of said West End mining claim, for a distance of eleven hundred seventy-five feet (1175'), or any other distance, or at all.

Plaintiff denies that there is any vein which has its top or apex within said West End mining claim, and which dips in a Southerly or any other direction and which in its course downward departs from the perpendicular, so as to extend outside and beyond a vertical plane drawn downward through the Southerly side line of the said West End claim, and which continues in its downward course, under and beneath the surface of said Eureka mining claim and said Curtis mining claim, or either of them.

Plaintiff denies that the defendant is, and for many years
1205 has been, or is, or ever was, the owner of, in possession and entitled to the possession, or the owner, or in possession, or entitled to possession, of said alleged vein or lode, throughout its entire depth, between planes, one drawn through the Easterly end line of said West End mining claim, continued indefinitely in its own direction Southerly, and another drawn parallel thereto, through a point, to-wit, eleven hundred seventy-five feet (1175') Westerly thereof, or through any other point Westerly of said east end line and continued indefinitely, or at all.

Plaintiff denies that the defendant never has mined or extracted any ore or mineral-bearing earth or rock within the boundaries, extended downward vertically, of either the said Eureka lode mining claim, or the said Curtis lode mining claim, except from a portion of said alleged vein or lode having its alleged top or apex within the said West End mining claim, which, in its alleged downward course, lies within the exterior boundaries, extended downward vertically, of the said Eureka lode mining claim and the said Curtis lode mining claim.

Plaintiff denies that there is any portion of a vein or lode, within the exterior boundaries, extended downward vertically, of the said Eureka lode mining claim, and the said Curtis lode mining claim, or either of them, which has its top or apex or any part thereof, within the exterior boundaries, extended downward vertically, of the said West End mining claim.

Plaintiff denies that all the ore and mineral-bearing earth or rock, which the defendant mined, within the premises in controversy in this action, to-wit, within the exterior boundary lines of said
1206 Curtis and Eureka mining claim, which was by the defendant milled or treated, or which could be, by anyone, milled or treated at any profit, after the same had been mined and extracted,

did not exceed twenty-three thousand, three hundred forty-one (23,341) tons; plaintiff denies that the aggregate net value thereof did not exceed Two Hundred Four Thousand, Three Hundred Dollars ($204,300). To the contrary, plaintiff alleges that said tonnage, so mined and extracted, by defendant from vertically beneath the surface of plaintiff's said premises, and which were and could be milled at a profit, far exceeded twenty-three thousand, three hundred forty-one (23,341) tons,—the exact tonnage being unknown to plaintiff,—and that the aggregate net value thereof far exceeded Two Hundred Four Thousand, Three Hundred Dollars ($204,300),—the exact net value being unknown to plaintiff.

IV.

Plaintiff alleges that the Westerly end boundary of said West End mining claim is not a straight line, but said boundary is a broken line composed of two segments having different directions, all of which more fully appears in the description contained in the patent for said West End mining claim issued by the United States and more fully set forth in the Answer of said defendant heretofore filed herein.

V.

Plaintiff denies that at all times mentioned in the complaint, and for a long time prior theretofore, or ever, or at all, the defendant was, has been, and now is, or was, or has been, or now is, the owner, in lawful possession and entitled to possession, or the owner, or in lawful possession, or entitled to possession, of that part or portion of said lode, ledge, or vein, so situate within the surface boundaries, extended downwards vertically, of said Eureka and said Curtis lode mining claim-, or either of them, from which said ores were by the defendant so mined, extracted and removed, and plaintiff alleges that whatever possession defendant has ever had of said premises so described has been entirely without right and an unlawful invasion of the rights of this plaintiff as more fully set forth in plaintiff's complaint heretofore filed herein.

Wherefore, plaintiff prays judgment according to its complaint herein.

CURTIS H. LINDLEY,
WILLIAM E. COLBY,
HUGH H. BROWN,
J. H. EVANS,
Attorneys for the Plaintiff.

STATE OF NEVADA,
County of Nye, ss:

Clyde A. Heller, being first duly sworn, according to law, says: That he is an officer, to-wit, the President, of Jim Butler Tonopah Mining Company, plaintiff named in the above and foregoing cause,

and that he makes this verification in his capacity as such President, and for and in behalf of the plaintiff corporation; that he has read the above and foregoing Replication and knows the contents thereof, and that the same are true of his own knowledge, except as to matters therein stated on information and belief, and as to those matter-, he believes it to be true.

CLYDE A. HELLER.

Subscribed and sworn to before me, this 21st day of August, 1914.

[NOTARIAL SEAL.] S. R. MOORE,
Notary Public in and for Nye County State of Nevada.

Commission Expires: Aug. 1, 1916.

A true and correct copy of the original now on file in my office.

H. R. MIGHELS,
Clerk Supreme Court of Nevada.

Endorsed: Mark A. Averill, District Judge. Filed August 28, 1914. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

1209 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

No. 2999.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,

vs.

WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Amended Complaint.

Comes now the Jim Butler Tonopah Mining Company, a corporation, plaintiff above-named, and by leave of the Court first had and obtained, files this, its Amended Complaint, and alleges:

I.

That the plaintiff, Jim Butler Tonopah Mining Company, is now and at all times since on or about October, 1903, has been a corporation duly organized and existing under the laws of the State of Delaware, having its principal place of business in the City of Wilmington in said State, with power to own and operate mines, and during all of said time has been and now is engaged in the carrying on of the business of mining in Nye County, State of Nevada.

That said plaintiff did, before commencing to do business in the State of Nevada, ever since has continued, and still continues to comply with all of the laws of the State of Nevada relating to foreign mining corporations doing business therein.

1210 II.

That the defendant, West End Consolidated Mining Company, is a corporation duly organized and existing under the laws of the State (formerly Territory) of Arizona, and said defendant has heretofore been and now is carrying on the business of mining in Nye County, State of Nevada, and that said County of Nye is the County in said State where the principal business of said corporation is conducted. That the said defendant has complied with the laws of the State of Nevada relating to foreign mining corporations doing business therein.

III.

That at all times herein mentioned the plaintiff has been the sole owner of and in the sole and actual possession, (except as hereinafter stated), and entitled to the immediate and exclusive possession of all those certain lots, pieces and parcels of land, together with the mines, lodes, ledges, veins and mineral deposits therein contained, situate, lying and being in the Tonopah Mining District, County of Nye, State of Nevada, described as follows:

First. That certain patented lode mining claim known as and called the Eureka Lode Mining Claim, being a portion of United States Survey designated by the United States Surveyor General for the State of Nevada as survey Number 2600.

Second. That certain patented lode mining claim known as and called the Curtis Lode Mining Claim, being a portion of United States Survey designated by the United States Surveyor General as survey Number 2042.

1211 That said Eureka and Curtis Lode Mining Claims are adjoining and contiguous to each other, and in connection with other properties adjoining and contiguous to said claims are, and at all times in this complaint mentioned were owned, possessed and worked by plaintiff as one mine.

IV.

That within and upon said Eureka and Curtis Lode Mining Claims there were at all times mentioned in this complaint and now are situated certain lodes, veins and mineral deposits of great value, carrying gold, silver and other valuable metals.

V.

That the defendant, West End Consolidated Mining Company, at all times mentioned in this complaint was and now is in possession, claiming to be the owner of that certain Lode Mining Claim situated in said Tonopah Mining District, Nye County, Nevada, known as and called the West End Lode Mining Claim, being United States Survey designated by the United States Surveyor General for the State of Nevada as survey number 2024. Said West End Lode Min-

ing Claim is contiguous to and adjoins said Eureka Lode Mining Claim, the property of this Plaintiff, as hereinbefore set forth. That within said West End Lode Mining Claim said Defendant has sunk certain shafts, winzes and other mine workings, and by means of crosscuts, winzes and other mine openings extended therefrom has passed outside of and beyond the boundaries of said West End Lode Mining Claim, and has entered upon and pentrated underneath the surface of the said Eureka and Curtis Lode Mining Claims, the property of this plaintiff.

1212 VI.

That by means of said mine workings so extended and made by said Defendant within and underneath the surface of said Eureka and Curtis Lode Mining Claims, the said Defendant has wilfully, wrongfully, unlawfully, fraudulently and secretly, and without the license, knowledge or consent of the Plaintiff, and continuously for more than six (6) months last past, entered upon and broken into the said Eureka and Curtis Lode Mining Claims, the property of this Plaintiff, and has worked, mined and extracted ore from the lodes, veins and mineral deposits lying and embraced within vertical planes passed through the exterior boundaries of Plaintiff's said lode mining claims, and is now working, mining and extracting ore from Plaintiff's said mining claims, lodes, veins and mineral deposits, and from that portion of the ground embraced within said vertical planes passed through the exterior boundaries of Plaintiff's said lode mining claims.

VII.

Plaintiff further alleges that within one year last past, through the mining operations of defendant so conducted and carried on as aforesaid within the exterior boundaries of the mining ground of Plaintiff, to-wit: said Eureka and Curtis Lode Mining Claims, said defendant has mined and extracted upwards of fifty-five thousand seven hundred sixty nine (55,769) tons of gold, silver and other mineral bearing ores then and there the property of this Plaintiff, and has wilfully, unlawfully, and maliciously taken out, carried away and converted the same to its own use, without the consent or knowledge of the Plaintiff; that the value of said 55,769 tons of gold, silver and other mineral bearing ore so mined and extracted, taken out, carried away and converted, as aforesaid, was and is as Plaintiff is
1213 informed and believes, the sum of One Million Sixty-five thousand seven hundred eighteen Dollars ($1,065,718.00).

VIII.

Plaintiff further alleges that defendant is now working and mining within the exterior boundaries of the lands and mining claims of Plaintiff hereinbefore described, and is now actually engaged in mining and extracting gold, silver and other mineral bearing ores from the veins, lodes and mineral deposits contained therein, and is

extracting large quantities of valuable ores therefrom, the exact quantity of which Plaintiff is not able to state, but on its information and belief it alleges is something in excess of four thousand (4,000) tons per month, the exact value of which is difficult of ascertainment and estimation, and defendant does now claim the right and threatens to, and will, unless restrained by the order of this Honorable Court, continue said trespass and the mining and extracting of said valuable ores from Plaintiff's said mining ground and claims, to-wit, said Eureka and Curtis Lode Mining Claims, and from the veins, lodes and mineral deposits contained therein, and will mine and extract therefrom all the mineral deposits and ore therein contained, and will thereby continue to injure and waste Plaintiff's said mining property, and to destroy and deprive said mining land of all value.

IX.

That plaintiff has no means of ascertaining, and it is impossible to ascertain or measure the value or quantity of mineral bearing ores, or to estimate the pecuniary value thereof which will be
1214 taken as aforesaid, or which will be taken by the Defendant from Plaintiff's said mining ground and from Plaintiff's veins, lodes and mineral deposits contained therein, and this Plaintiff cannot ascertain, and it is difficult, if not impossible, to ascertain the amount of pecuniary compensation which would adequately compensate plaintiff for the injuries and damages that Defendant now threatens to and will inflict upon Plaintiff and upon the mining grounds and properties of Plaintiff hereinbefore described. That said mining ground and properties of Plaintiff have no value other than for the veins, lodes and mineral deposits therein. Plaintiff alleges that unless restrained by order of this Honorable Court, defendant will inflict upon Plaintiff, and upon the mining properties of Plaintiff, irreparable injury.

Wherefore, Plaintiff prays judgment against the Defendant—

(1) That defendant and its agents, servants and employees be enjoined from working, mining or entering upon any portion of Plaintiff's said properties, and the mining ground and claims hereinbefore described as owned and possessed by the Plaintiff, and the mine, veins, lodes and mineral deposits contained therein pending this action.

(2) That by a final judgment of this Court Defendant be perpetually enjoined from doing any of the acts above specified, and that all entries to any portion of Plaintiff's said mining properties by Defendant, by means of any of the underground works of
1215 Defendant, be effectually closed by the order of this Court, at the expense of Defendant.

(3) That Plaintiff have judgment against Defendant for One Million, Sixty-five thousand, seven hundred eighteen Dollars ($1,065,718.00), and that said judgment be trebled.

(4) That Plaintiff recover costs.

(5) That Plaintiff have judgment for such other and further relief against the defendant in the premises as is just and equitable.

CURTIS H. LINDLEY,
WM. E. COLBY,
HUGH H. BROWN,
J. H. EVANS,
Attorneys for Plaintiff.

1216 STATE OF NEVADA,
County of Nye, ss:

Clyde A Heller, being duly sworn, deposes and says:

I am an officer, to-wit, President of the Jim Butler Tonopah Mining Company, Plaintiff in this action. I make this affidavit for and on behalf of said Plaintiff.

I have read the foregoing complaint and know the contents thereof. The same is true of my own knowledge, except the matters therein stated on information and belief, and that as to those matters I believe it to be true.

CLYDE A. HELLER.

Subscribed and sworn to before me, this 7th day of December, 1914.

[SEAL.] HUGH H. BROWN,
Notary Public in and for Nye County, State of Nevada.

Endorsed: Mark R. Averill, District Judge. Filed December 7, 1914. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

A true and correct copy,
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

1217 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

No. 2999.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Stipulation.

It is stipulated and agreed between the parties hereto as follows:

I.

That the motion of Plaintiff heretofore made to file an amendment to its complaint, amending Paragraph VII of said complaint and Paragraph 3 of the Prayer of said complaint may be granted

and said amendments or an engrossed amended complaint embodying said amendments may be filed as of the date of this stipulation:—that the Answer of the Defendant to the original complaint shall be deemed and taken as the Answer to the amended complaint and the replication heretofore filed shall stand as a replication to said Answer; subject to all rights of amendments by permission of the Court.

II.

The title, ownership and right of possession to the ore bodies in dispute shall be first tried and determined by the Court before Plaintiff shall be called upon to introduce evidence as to tonnage and value of ore extracted by Defendant. The issues raised by said amended complaint, answer, and replication shall be tried in the following order:

1218 As by said pleadings it is admitted that Defendant has been carrying on mining operations and extracting ore from underneath the surface of the Eureka and Curtis Mining Claims, owned by the Plaintiff, the Defendant shall proceed to introduce its testimony justifying its right to so mine and extract said ore. Plaintiff shall thereupon introduce its testimony in opposition to Defendant's and Defendant shall thereupon rebut the same. After the evidence has been fully taken in behalf of both parties on the issue as to title, ownership and right of possession, and argument thereon had, such issue shall thereupon be submitted to the Court for its finding and decision.

III.

In the event that the Court finds in favor of Plaintiff on the issue of title, the question of the tonnage and value of the ores claimed to have been extracted by Defendant from underneath the surface of Plaintiff's mining claims and all other matters pertinent to that issue shall be brought on for hearing and trial by the Court by either party upon five days' notice one to the other. Plaintiff first introducing testimony, Defendant to follow, and Plaintiff to close with its rebuttal. In determining the tonnage and value there shall be included all such ores extracted and removed by Defendant underneath the surface of Plaintiff's mining claims prior to the commencement of this action, as may by the Court be determined to have been the property of Plaintiff, and shall also include all ore extracted and removed by Defendant from such property since the commencement of this action, which shall be adjudged to be the property of Plaintiff, and up to and including the date of the trial of such issue of tonnage and value. Upon the determination by the Court of the issue of tonnage and value, findings of fact and conclusions of law, embracing all the issues in the case, shall be signed and filed, and judgment therein shall be entered.

1219 IV.

In the event said Court shall determine said issue of title in favor of Defendant, findings of fact and conclusions of law shall be filed and judgment therein entered.

V.

Nothing in this stipulation contained shall be construed as a waiver on the part of either party of their respective rights to move to vacate or set aside any judgment which may be entered in this action, or the findings and conclusions of law made by the Court; or to apply for a new trial, or to appeal from said judgment or to take any steps in regard thereto as the respective parties may be advised.

VI.

Upon demand made in that behalf by Plaintiff, at any time subsequent to the announcement by the Court of its Decision on the issue of title, if such decision be in favor of Plaintiff, the Defendant will permit Plaintiff, its attorneys and an assistant to be nominated by Plaintiff, to inspect and take copies of all entries in the books of Defendant, relating to the tonnage and value of said ores, and to inspect and take copies of all assay sheets, memoranda of assays, maps, and other data, showing or tending to show the tonnage and value of said ores; and to give to said Plaintiff all information Defendant, its officers, and employees have in reference to said tonnage and values.

1220 VII.

In the event said Court shall determine the issue of title in favor of said Plaintiff, and upon its announcement of such determination, the Court shall forthwith issue and set for hearing an order to show cause herein upon the application for a restraining order and injunction filed herein by Plaintiff on the second day of December, 1914.

Dated at Tonopah, Nevada, December 7th, 1914.

CURTIS H. LINDLEY,
HUGH H. BROWN,
W. E. COLBY,
J. H. EVANS,
Attorneys for Plaintiff.
PECK, BUNKER & COLE,
HORATIO ALLING,
CHENEY, DOWNER, PRICE & HAWKINS,
DICKSON, ELLIS, ELLIS & SCHULDER,
H. H. ATKINSON,
Attorneys for Defendant.

Endorsed: Mark R. Averill, District Judge. Filed Dec. 7, 1914. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

A true and correct copy.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

1220½ [Endorsed:] No. 2999. In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye. Jim Butler Tonopah Mining Company, a Corporation, Plaintiff, vs. West End Consolidated Mining Company, a Corporation, Defendant. Stipulation. Filed Dec. 7, 1914. Robert G. Pohl, Clerk. Endorsed by Mark R. Averill, District Judge.

1221 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Findings of Fact and Conclusions of Law.

This cause, having been called regularly for trial on the 8th day of December, 1914, before the Court (a jury trial having been expressly waived, as appears from the minutes of this court); and Curtis H. Lindley, Esq., Hugh H. Brown, Esq., W. E. Colby, Esq., and J. H. Evans, Esq., appearing as attorneys for the plaintiff, and Peck, Bunker & Cole, Horatio Alling, Esq., Cheney, Downer, Price & Hawkins, Dickson, Ellis, Ellis & Schulder, and H. H. Atkinson, Esq., appearing for the defendant; and the trial being proceeded with and concluded under and pursuant to a certain stipulation entered into between the respective parties, which said stipulation is as follows, to wit:

1222 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

No. 2999.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Stipulation.

It is stipulated and agreed between the parties hereto as follows:

I.

That the motion of Plaintiff heretofore made to file an amendment to its complaint, amending Paragraph VII of said complaint

and Paragraph 3 of the Prayer of said complaint may be granted and said amendments or an engrossed amended complaint embodying said amendments may be filed as of the date of this stipulation:—that the Answer of the Defendant to the original complaint shall be deemed and taken as the Answer to the amended complaint and the replication heretofore filed shall stand as a replication to said Answer; subject to all rights of amendments by permission of the Court.

II.

The title, ownership and right of possession to the ore bodies in dispute shall be first tried and determined by the Court before Plaintiff shall be called upon to introduce evidence as to tonnage and value of ore extracted by Defendant. The issues raised by said amended complaint, answer, and replication shall be tried in the following order:

As by said pleadings it is admitted that Defendant has been carrying on mining operations and extracting ore from underneath the surface of the Eureka and Curtis mining Claims, owned by the Plaintiff, the Defendant shall proceed to introduce its testimony justifying its rights to so mine and extract said ore. Plaintiff shall thereupon introduce its testimony in opposition to Defendant's and Defendant shall thereupon rebut the same. After the evidence has been fully taken in behalf of both parties on the issue as to title, ownership and right of possession, and argument thereon had, such issue shall thereupon be submitted to the Court for its finding and decision.

1223

III.

In the event that the Court finds in favor of Plaintiff on the issue of title, the question of the tonnage and value of the ores claimed to have been extracted by Defendant from underneath the surface of Plaintiff's mining claims and all other matters pertinent to that issue shall be brought on for hearing and trial by the Court by either party upon five days' notice one to the other. Plaintiff first introducing testimony, Defendant to follow, and Plaintiff to close with its rebuttal. In determining the tonnage and value there shall be included all such ores extracted and removed by Defendant underneath the surface of Plaintiff's mining claims prior to the commencement of this action, as may by the Court be determined to have been the property of Plaintiff, and shall also include all ore extracted and removed by Defendant from such property since the commencement of this action, which shall be adjudged to be the property of Plaintiff, and up to and including the date of the trial of such issue of tonnage and value, findings of fact and conclusions of law, embracing all the issues in the case, shall be signed and filed, and judgment therein shall be entered.

IV.

In the event said Court shall determine said issue of title in favor

of Defendant, findings of fact and conclusions of law shall be filed and judgment therein entered.

V.

Nothing in this stipulation contained shall be construed as a waiver on the part of either party of their respective rights to move to vacate or set aside any judgment which may be entered in this action, or the findings and conclusions of law made by the Court; or to apply for a new trial, or to appeal from said judgment or to take any steps in regard thereto as the respective parties may be advised.

VI.

Upon demand made in that behalf by Plaintiff, at any time subsequent to the announcement by the Court of its Decision on the issue of title, if such decision be in favor of Plaintiff, the Defendant will permit Plaintiff, its attorneys and an assistant to be nominated by Plaintiff, to inspect and take copies of all entries in the books of Defendant, relating to the tonnage and value of said ores, and to inspect and take copies of all assay sheets, memoranda of assays, maps, and other data, showing or tending to show the tonnage and value of said ores; and to give to said Plaintiff all information Defendant, its officers, and employees have in reference to said tonnage and values.

1224

VII.

In the event that said Court shall determine the issue of title in favor of said Plaintiff, and upon its announcement of such determination, the Court shall forthwith issue and set for hearing an order to show cause herein upon the application for a restraining order and injunction filed herein by Plaintiff on the second day of December, 1914.

Dated at Tonopah, Nevada, December 7th, 1914.

CURTIS H. LINDLEY,
HUGH H. BROWN,
W. E. COLBY,
J. H. EVANS,
Attorneys for Plaintiff.
PECK, BUNKER & COLE,
HORATIO ALLING,
CHENEY, DOWNER, PRICE & HAWKINS,
DICKSON, ELLIS, ELLIS & SCHULDER,
H. H. ATKINSON,
Attorneys for Defendant.

(Endorsed:) Filed Dec. 7, 1914. Robert G. Pohl, Clerk, by Lowell Daniels, Deputy.

and the Court having heard the proofs of the respective parties and considered the same, and the records and papers in the cause,

and the arguments of the respective attorneys thereon, and the cause having been submitted to the Court for its decision, the Court now finds the following facts:

1225 *Findings of Fact.*

I.

That the Plaintiff, Jim Butler Tonopah Mining Company, at all of the times mentioned in the Complaint and the Amended Complaint herein, was, and is now, the owner and in possession of, and entitled to the possession of those certain patented lode mining claims situated, lying and being in the Tonopah Mining District, County of Nye, State of Nevada, known as and called respectively the Eureka lode mining claim and the Curtis lode mining claim; the said Eureka lode mining claim being a portion of United States Survey designated by the United States Surveyor General of the State of Nevada as Survey No. 2600; and the said Curtis lode mining claim being a portion of United States Survey designated by the United States Surveyor General of the State of Nevada as Survey No. 2042.

II.

That the defendant, West End Consolidated Mining Company, is, and it or its predecessors in interest continuously for more than thirteen years last past has been, the owner of, in possession of, and entitled to the possession of that certain lode mining claim situated in the Tonopah Mining District, Nye County, State of Nevada, known as and called the West End lode mining claim, being United States Survey designated by the United States Surveyor General for the State of Nevada as Survey No. 2024; that the Government of the United States, by patent bearing date the 21st day of July, 1904, granted and conveyed said West End mining claim to the defendant's grantor and predecessor in interest, namely, the Tonopah Extension Milling & Mining Company, a corporation; that said mining claim is described in said patent as follows, to wit:

1226 Beginning at Corner No. 1, from which the south corner of Section 35 in Township 3 North of Range 42 Mount Diablo Meridian bears South 2 deg. 12 min. west 1248.6 feet distant.

Thence, first course, south 74 deg. 42 min. West 750 feet to Corner No. 2; 1406.8 feet to Corner No. 3.

Thence, second course, North 11 deg. 20 min. W. 301 feet to Corner No. 4.

Thence, third course, North 5 deg. 31 min. East 313.3 feet to Corner No. 5.

Thence, fourth course, North 74 deg. 6 min. East 749.9 feet to Corner No. 6.

Thence, fifth course, North 74 deg. 42 min. East 608 feet to Corner No. 7.

Thence, sixth course, South 83 deg. 58 min. East 134.5 feet to Corner No. 8.

Thence, seventh course, South 5 deg. 31 min. West. 269.8 feet to a point from which discovery shaft bears South 74 deg. 42 min. West 204.5 feet; 590.7 feet to Corner No. 1, the place of beginning.

That prior to the issuance of said patent a valid discovery was made upon and within said West End Mining Claim, and a vein or lode of rock in place, bearing gold, silver, and other valuable metals was cut by and disclosed in the discovery shaft of said mining claim; that said vein or lode so cut and disclosed in said discovery shaft, at its top or apex, and on its course or strike, crosses the easterly end line of said West End mining claim, and thence, at its top or apex and on its course or strike, continues in a westerly direction within said mining claim, and between the side lines thereof, until it intersects, and at its top or apex and on its course or strike, crosses the northerly side line of said mining claim and so departs therefrom.

III.

That said Eureka lode mining claim adjoins and is contiguous to said West End mining claim upon and along the southerly side line of said West End mining claim, and that said Curtis
1227 lode mining claim adjoins and is contiguous to said Eureka lode mining claim upon and along the southerly side line of said Eureka lode mining claim.

IV.

That there is a vein or lode of rock in place, bearing gold, silver, and other valuable metals, which, at its top or apex, and on its course or strike, crosses the easterly end line of said West End mining claim 130 to 140 feet northerly from the southeasterly corner of said mining claim, and thence, at its top or apex, and on its course or strike, continues westerly in said mining claim between the side lines thereof to a point on the northerly side line of said claim 1142½ feet westerly from the northeast corner of said claim measured along the northerly side line thereof, at which point the said vein, at its top or apex, and on its course or strike, departs from said mining claim, crossing said northerly side line. That said vein dips southerly, and in its downward course so far departs from the perpendicular as to pass beyond the southerly side line of said West End mining claim, extended downward vertically, and thence into and beneath the surface of the said Eureka lode mining claim and the said Curtis lode mining claim of the plaintiff company.

That the defendant is now, and at all of the times mentioned in the Complaint and the Amended Complaint herein, was, the owner of, in possession of, and entitled to the possession of said vein in this finding mentioned and described throughout its entire depth between vertical planes, one drawn through the easterly end line of said West End mining claim continued in its own direction indefinitely southerly, and another drawn parallel thereto through a point on the northerly side line of said mining claim 1142½ feet westerly
1228 from the northeast corner of said mining claim, measured

along the northerly side line thereof, continued indefinitely in its own direction southerly.

The said vein is more particularly described as follows:

The said vein does not on its upward course, or at its top or apex, outcrop or reach the present surface, but is covered or buried to a considerable depth by lava, locally known as and called "Midway" andesite, which, after the formation of the vein, flowed over the then surface of the territory in which the vein exists; that at and for a distance of 360 feet westerly from where said vein or lode crosses the easterly end line of said West End claim, which crossing is at a distance of 135 feet northerly from the southeast corner of said West End claim, there is a juncture or union between two limbs or sides of said vein, and from the summit of said juncture or union the downward course of one limb or side thereof is in a northerly direction, and the downward course of the other limb or side thereof is in a southerly direction; that there is a continuation upward from the summit of said juncture or union of said northerly and southerly dipping limbs or sides of said vein, of ore and silver-bearing quartz or rock in place for a distance from 20 or 30 to more than 100 feet, and to what was the surface before the same was buried beneath the said lava flow; that such ore and silver-bearing quartz were deposited where the same are now found at
the same time and during the same period that the main vein
1229 below was created, and from mineral-bearing solutions having
the same source; that the dip is fairly conformable and the strike or course of such upward continuation of ore and silver-bearing quartz is conformable to the dip and strike or course of the said northerly-dipping limb or side of said vein from the summit of said juncture downward, and the Court finds that said upward continuation is a part of said vein or lode; that thence westerly, and for a distance of 360 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein do not unite or form a union or juncture in their upward course, but for that distance each of said limbs or sides has a separate and independent top or apex; that thence westerly, for a distance of 40 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein are again found in conjunction, as in the said most easterly 360 feet; that thence westerly, and until said northerly and southerly dipping limbs, sides, or slopes of said vein intersect with and cross said northerly side line of said mining claim, they do not unite or form a union or juncture in their upward course, but for that distance each of said limbs or sides has a separate and independent top or apex; that between said distance of 40 feet, where said northerly and southerly dipping limbs, sides, or slopes of said vein, as aforesaid, unite or form a union or juncture in their course upward, and said points on said northerly side line of said mining claim where, as aforesaid, said contra-dipping limbs, sides or slopes of said vein respectively intersect said side line and cross the same and so depart from said mining claim, there are two points at which it appears that said contra-dipping limbs, sides or slopes of said vein on their upward course approach closely to a juncture or union, but as to said contra-dipping limbs, sides, or

slopes of said vein at said two points actually forming a
1230 juncture or union on their upward course, the evidence is meager and unsatisfactory; that the point where the said northerly dipping limb or side of said vein departs from the said mining claim through the northerly side line thereof is 1120 feet westerly from the northeast corner of said claim measured along the northerly side line thereof; that the point where said southerly dipping limb or side of said vein departs from said mining claim through the northerly side line thereof is 1142½ feet westerly from the northeast corner of said claim measured along the northerly side line thereof; that throughout said distance of 40 feet, where the contra-dipping limbs or sides of said vein are found in conjunction, as hereinbefore stated, there is a continuation upward from the summit of the juncture or union of said two limbs or sides of said vein of ore or vein quartz to what was the surface before the same was covered by the lava flow; that the dip or downward course of both the northerly and southerly dipping sides or limbs of the vein where the two are found in conjunction, as aforesaid, and also in the places where each, as aforesaid, has its separate and independent top or apex, is regular and practically free from undulations; that the said southerly dipping limb or side of the vein in the easterly portion of the West End claim, that is to say, the easterly 360 feet thereof, has been developed from the top or summit of said juncture of said contra-dipping limbs to and beyond the southerly side line of said claim, or for a distance, measured on the slope or downward course of said southerly dipping limb or side, of 800 feet or thereabouts, the average dip there being 17 degrees from the horizontal; that the westerly portion, that is to say, the westerly 300 feet of said southerly dipping limb or side of said vein found in the West End claim, has
been developed from its top to and beyond the southerly
1231 side line of said claim, or for a distance, measured on its slope or downward course, of 1000 feet or thereabouts, the average dip there being 30 degrees from the horizontal; that the average dip of said northerly dipping limb or side of said vein, so far as the same has been developed in its downward course, is 17 degrees from the horizontal; that said vein is a fissure vein; that there is a difference in the strikes or courses of said northerly and southerly dipping limbs of said vein of about 40 degrees; that at said places and throughout said distances, where said contra-dipping limbs of said vein are found to intersect and form a juncture, as aforesaid, there has been a mingling of the mineralizations of said two limbs of said vein within the angle beneath the juncture of the said two limbs; that at such places and throughout said distances the footwall of said two limbs of said vein, within the angle beneath their said juncture, by the process of replacement has been converted into mineralized quartz for considerable distances below said juncture, said replacement quartz extending from limb to limb.

That the shaft known as the McQuillan shaft was the discovery shaft of the West End mining claim; that said discovery shaft encountered and disclosed no vein or lode of mineral-bearing rock in place until, in its downward course, it cut and disclosed said north-

erly dipping limb or part of said vein; that said northerly dipping limb of said vein was cut and disclosed in said discovery shaft on the 3rd day of April, 1903.

V.

That all of the ores mentioned in the Complaint and in the Amended Complaint herein, as having been mined, broken down, extracted and removed by the defendant within the surface boundaries extended downward vertically of said Eureka and Curtis
1232 lode mining claims, were mined, broken down, extracted and removed by the defendant from said vein and between the extralateral planes described in the next preceding Finding.

VI.

That all of said ores mention- in the next preceding Finding, so as aforesaid mined, broken down, extracted and removed by the defendant within the surface boundaries of said Eureka and Curtis lode mining claims extended downward vertically were the property of, and were owned by, the said defendant at the time they were so mined, broken down, extracted and removed; that none of the said ores, so as aforesaid mined, broken down, extracted and removed by the defendant within the surface boundaries extended downward vertically of said Eureka and Curtis lode mining claims was, at the time they were so mined, broken down, extracted and removed, or ever was, the property of said plaintiff.

That said plaintiff has not suffered or sustained any damage in any form whatever by reason of any act of the defendant alleged in the Complaint or the Amended Complaint herein.

VII.

That the defendant never threatened to, or intended to, or ever claimed the right to enter upon or under the surface of said Eureka lode mining claim or said Curtis lode mining claim, other than that part or portion thereof included within said vein or lode herein found to have its top or apex within said West End mining claim and which on its downward course passes into and beneath the surface of said Eureka and Curtis lode mining claims; and the defendant never threatened to, or intended to, or ever claimed the right to enter upon or mine or extract ores from said vein from beneath the surface of said Eureka and Curtis lode mining claims other than that part or portion of said vein between vertical planes, one
1233 drawn through the easterly end line of said West End mining claim extended in its own direction indefinitely southerly, and another, parallel thereto, through a point on the northerly side line of said West End mining claim 1142½ feet westerly from the northeast corner of said mining claim, measured along the northerly side line thereof, extended in its own direction indefinitely southerly.

Conclusions of Law.

From the foregoing Findings of Fact the Court makes the following Conclusions of Law:

I.

That at all of the times mentioned in the Complaint and the Amended Complaint herein, the defendant was and now is, the owner of, in possession of, and entitled to the possession of all of the vein from which the ores were taken as alleged in the Complaint and the Amended Complaint herein, and as herein found, between vertical planes, one drawn through the easterly end line of said West End mining claim, continued in its own direction indefinitely southerly, and another, parallel thereto, drawn through a point on the northerly side line of said mining claim, 1142½ feet westerly from the northeasterly corner of said mining claim, measured along the northerly side line thereof, continued in its own direction indefinitely southerly.

II.

That said plaintiff has not suffered or sustained any damage in any form whatever by reason of any act alleged in the Complaint or the Amended Complaint herein.

1234 III.

That said plaintiff is not entitled to take anything by its said action; that the said defendant have and recover from said plaintiff its costs in the sum of —.

IV.

That all restraining orders or interlocutory injunctions heretofore made or issued in said cause upon entry of judgment should be dissolved.

And judgment is hereby ordered entered accordingly.
Dated at Tonopah, Nevada, May 27th, 1915.

MARK R. AVERILL,
Judge of said District Court.

A true and correct copy.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

Filed May 27, 1915. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

1234½ [Endorsed:] In the District Court of the Fifth Judicial District of the State of Nevada, in and for the County of Nye. Jim Butler Tonopah Mining Company, a corporation, Plain-

tiff, vs. West End Consolidated Mining Company, a corporation, Defendant. Findings of Fact and Conclusions of Law. Filed May 27, 1915. Robert B. Pohl, Clerk.

Endorsed: Mark R. Averill, District Judge.

1235 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,

vs.

WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Judgment.

This action was called regularly for hearing on December 8, 1914, before the Court, a jury trial having been expressly waived by the parties. The plaintiff appeared through Curtis H. Lindley, Esq., Hugh H. Brown, Esq., W. E. Colby, Esq., and J. H. Evans, Esq., its attorneys, and the defendant appeared by Peck, Bunker & Cole, Horatio Alling, Esq., Cheney, Downer, Price & Hawkins, Dickson, Ellis, Ellis & Schulder, and H. H. Atkinson, Esq., its attorneys; and the Court heard the testimony introduced on behalf of the respective parties and reserved the case for argument. That thereafter, on the 8th day of March, 1915, the parties again appeared through the same counsel, and the Court heard the arguments of the attorneys of the respective parties and reserved its decision. That afterwards, on April 30, 1915, the Court filed its decision. That thereafter, and on May 27th, 1915, the Court made and filed its Findings of Fact and Conclusions of Law.

1236 Wherefore, by reason of the law and the premises, as aforesaid, it is ordered, adjudged, and decreed that the plaintiff take nothing by its action in this behalf.

It is further ordered, adjudged, and decreed by the Court that all injunctions and restraining orders heretofore issued in this case be, and the same are, hereby dissolved.

It is further ordered, adjudged, and decreed by the Court that the defendant recover its costs and necessary disbursements incurred in this action in the sum of One Hundred Eighty Nine and 60/100 ($189.60) Dollars.

Done in open court this third day of June, 1915.

MARK R. AVERILL,
Judge of said District Court.

A true & correct copy.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

Filed June 3, 1915. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

1237–1474 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,

vs.

WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

I, the undersigned, County Clerk of Nye County, State of Nevada, and ex-officio Clerk of the District Court of the Fifth Judicial District of the State of Nevada, in and for the County of Nye, do hereby certify the foregoing to be a true copy of the Judgment entered in the above entitled action, and recorded in Judgment Record D of said Court, at page 337. And I further certify that the foregoing papers, hereto annexed, constitute the Judgment Roll in said action.

Witness my hand and the seal of said Court, this 3rd day of June, A. D. 1915.

[Seal of the Fifth Judicial District Court.]

ROBERT G. POHL, *Clerk*,
By LOWELL DANIELS,
Deputy Clerk.

A true and correct copy.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

Filed June 3, 1915. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

* * * * * * *

1475 In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye.

No. 2999.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Plaintiff,

vs.

WEST END CONSOLIDATED MINING COMPANY, a Corporation, Defendant.

Notice of Appeal from the Judgment and Order Denying Motion for New Trial.

To the West End Consolidated Mining Company, a corporation, defendant in the above-entitled cause, and to its attorneys, Messrs. Peck, Bunker & Cole, Dickson, Ellis, Ellis & Schulder, Cheney, Downer, Price & Hawkins, Horatio Alling and H. H. Atkinson, and to Robert G. Pohl, as clerk of the above-entitled court:

You and each of you will please take notice, and you are hereby notified, That the Plaintiff in the above-entitled action hereby ap-

peals to the Supreme Court of the State of Nevada from the Judgment made and entered in the above-entitled court in said cause on the third day of June, 1915, and from the whole of said Judg-
1476 ment, and also from the Order made and entered by said court on the sixth day of July, 1915, denying Plaintiff's Motion for a New Trial herein.

Dated: August sixth, 1915.

CURTIS H. LINDLEY,
WILLIAM E. COLBY,
HUGH H. BROWN,
J. H. EVANS,
By HUGH H. BROWN.
As Attorneys for Plaintiff.

Filed August 6, 1915. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy.

A true and correct copy.
H. R. MIGHELS,
Clerk Supreme Court of Nevada.

1476½-1482 [Endorsed:] No. 2999. In the District Court of the Fifth Judicial District of the State of Nevada in and for the County of Nye. Jim Butler Tonopah Mining Company, a corporation, Plaintiff, vs. West End Consolidated Mines Company, a corporation, Defendant. Notice of appeal from the judgment and order denying motion for new trial. Filed August 6, 1915. Robert B. Pohl, Clerk, by Lowell Daniels, Deputy. Curtis H. Lindley, William E. Colby, Hugh H. Brown, J. H. Evans, Attorneys for the Plaintiff. 312-316 State Bank and Trust Co. Building, Tonopah, Nevada.

* * * * * * *

1483 In the Supreme Court of the State of Nevada.

No. 2195.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Respondent.

Curtis H. Lindley, William E. Colby, Hugh H. Brown, J. H. Evans, Attorneys for Appellant.

Peck, Bunker & Cole, Dickson, Ellis, Ellis & Schulder, Cheney, Downer, Price & Hawkins, Horatio Alling, H. H. Atkinson, Attorneys for Respondent.

Statement of the Case.

This is an action brought by the appellant, the Jim Butler Tonopah Mining Company, against the respondent, the West End Con-

solidated Mining Company, to recover damages for ore ex-
1484 tracted by the respondent and situated vertically beneath the surface of the Eureka and Curtis lode mining claims owned by appellant, and also for an injunction restraining the defendant from committing further trespass.

The respondent owns the adjoining West End lode mining claim, and asserts the right to mine extralaterally on the vein and ore bodies in dispute by virtue of the ownership of this claim, which it contends embraces the apex of the vein, so situated with reference to the boundaries of the claim that it can avail itself of the extralateral grant contained in the federal mining statutes.

The court found, among other facts, the following:

"That there is a vein or lode of rock in place, which, at its top or apex, and on its course or strike, crosses the easterly end line of said West End mining claim 130 to 140 feet northerly from the southeasterly corner of said mining claim, and thence, at its top or apex, and on its course or strike, continues westerly in said mining claim between the side lines thereof to a point on the northerly side line of said claim 1142½ feet westerly from the northeast corner of said claim, at which point the said vein, at its top or apex, and on its course or strike, departs from said mining claim, crossing said northerly side line. That said vein dips southerly, and in its downward course so far departs from the perpendicular as to pass beyond the southerly side line of said West End mining claim, extended downward vertically, and thence into and beneath the surface of the said Eureka lode mining claim and the said Curtis lode mining claim of the plaintiff company.

The said vein does not on its upward course, or at its top or apex, outcrop or reach the present surface, but is covered or buried to a considerable depth by lava, locally known as and called "Midway" andesite, which, after the formation of the vein, flowed over the then surface of the territory in which the vein exists; that at and for a distance of 360 feet westerly from where said vein or lode crosses the easterly end line of said West End claim, which crossing is at a distance of 135 feet northerly from the southeast corner of said West End claim, there is a juncture or union between two limbs or sides of said vein, and from the summit of said juncture or union the downward course of one limb or side thereof is in a northerly direction, and the downward course of the other limb or side
1485 thereof is in a southerly direction; that there is a continuation upward from the summit of said juncture or union of said northerly and southerly dipping limbs or sides of said vein, of ore and silver-bearing quartz or rock in place for a distance from 20 or 30 to more than 100 feet, and to what was the surface before the same was buried beneath the said lava flow; that such ore and silver-bearing quartz were deposited where the same are now found at the same time and during the same period that the main vein below was created, and from mineral bearing solutions having the same source; that the dip is fairly conformable and strike or course of such upward continuation of ore and silver-bearing quartz is conformable to the dip and strike or course of said northerly-dipping limb or side of

said vein from the summit of said juncture downward, and the Court finds that said upward continuation is a part of said vein or lode; that thence westerly, and for a distance of 360 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein do not unite or form a union or juncture in their upward course, but for that distance each of said limbs or sides has a separate and independent top or apex; that thence westerly for a distance of 40 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein are again found in conjunction, as in the said most easterly 360 feet; that thence westerly, and until said northerly and southerly dipping limbs, sides, or slopes of said vein intersect with and cross said northerly side line of said mining claim, they do not unite or form a union or juncture in their upward course, but for that distance each of said limbs or sides has a separate and independent top or apex; that between said distance of 40 feet, where said northerly and southerly dipping limbs, sides, or slopes of said vein, as aforesaid, unite or form a union or juncture in their course upward, and said points on said northerly side line of said mining claim where, as aforesaid, said contra-dipping limbs, sides or slopes of said vein respectively intersect said side line and cross the same and so depart from said mining claim, there are two points at which it appears that said contra-dipping limbs, sides or slopes of said vein on their upward course approach closely to a juncture or union, but as to said contra-dipping limbs, sides, or slopes of said vein at said two points actually forming a juncture or union on their upward course, the evidence is meager and unsatisfactory; that the point where the said northerly dipping limb or side of said vein departs from the said mining claim through the northerly side line thereof is 1120 feet westerly from the northeast corner of said claim measured along the northerly side line thereof; that the point where said southerly dipping limb or side of said vein departs from said mining claim through the northerly side line thereof is 1142½ feet westerly from the
1486 northeast corner of said claim measured along the northerly side line thereof; that throughout said distance of 40 feet, where the contra-dipping limbs or sides of said vein are found in conjunction, as hereinbefore stated, there is a continuation upward from the summit of the juncture of union of said two limbs or sides of said vein of ore or vein quartz to what was the surface before the same was covered by the lava flow; that the dip or downward course of both the northerly and southerly dipping sides or limbs of the vein where the two are found in conjunction, as aforesaid, and also in the places where each, as aforesaid, has its separate and independent top or apex, is regular and practically free from undulations; that the said southerly dipping limb or side of the vein in the easterly portion of the West End claim, that is to say, the easterly 360 feet thereof, has been developed from the top or summit of said juncture of said contra-dipping limbs to and beyond the southerly side line of said claim, or for a distance, measured on the slope or downward course of said southerly dipping limb or side, of 800 feet or thereabouts, the average dip there being 17 degrees from the horizontal; that the westerly portion, that is to say, the westerly 300 feet of said

southerly dipping limb or side of said vein found in the West End claim, has been developed from its top to and beyond the southerly side line of said claim, or for a distance, measured on its slope or downward course, of 1,000 feet or thereabouts, the average dip there being 30 degrees from the horizontal; that the average dip of said northerly dipping limb or side of said vein, so far as the same has been developed in its downward course, is 17 degrees from the horizontal; that said vein is a fissure vein; that there is a difference in the strikes or courses of said northerly and southerly dipping limbs of said vein of about 40 degrees; that at said places and throughout said distances, where said contra-dipping limbs of said vein are found to intersect and form a juncture, as aforesaid, there has been a mingling of the mineralizations of said two limbs of said vein within the angle beneath the juncture of the said two limbs; that at such places and throughout said distances the footwall of said two limbs of said vein, within the angle beneath their said juncture, by the process of replacement has been converted into mineralized quartz for considerable distances below said juncture, said replacement quartz extending from limb to limb."

Appellant bases its appeal from the decision of the trial court on the following grounds:

"A. Erroneous Findings of Fact.

"1. That the finding of the trial court that the two sides of Northerly and Southerly dippings slopes of the single vein
1487 involved are not united at the crest of the anticlinal roll, but are separated for considerable distances within the West End claim, thus forming separate terminal edges along the upper edges of each of these stopes, is unsupported by the evidence.

"2. That the finding of the trial court giving the occurrences of quartz in the 'A' series of raises the dignity of a vein is not justified by the evidence, and further, that no matter what may be its character, it admittedly dips to the North and has no bearing on a claimed extralateral right extending to the South.

"B. Errors of Law.

"1. The trial court found that the discovery in the West End claim was on the Northerly dipping portion or slope of the vein, and in spite of this finding awarded an extralateral right to appellee on the Southerly dipping limb or slope of the vein. Appellant contends that this is an erroneous construction of the federal statute granting the right to follow a vein extralaterally, and that extralateral rights in two opposite directions attaching to the same mining claim, and the same vein, are not contemplated by this statute.

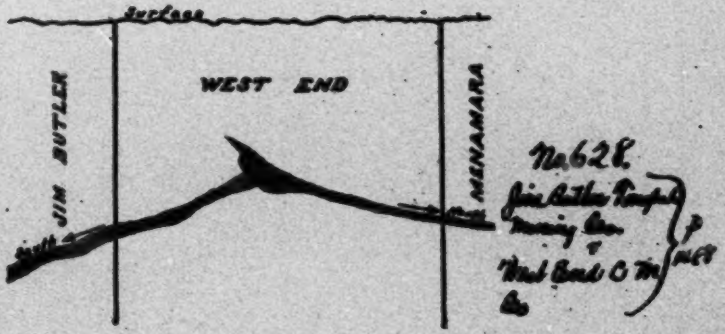
"2. The trial court found that the Northerly and Southerly dipping limbs or sides of the vein were united and joined at the crest of the roll for a considerable distance within the West End claim. Appellant contends that the court should have denied the appellee the right to follow the vein extralaterally where such a condition

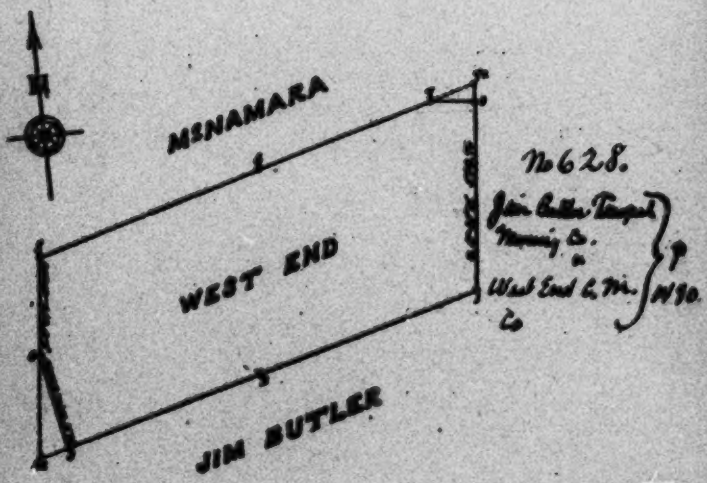
exists and that no extralateral right whatsoever attaches to an anticlinal occurrence in a vein since the latter does not constitute an apex within the meaning of the federal mining statute.

"3. The Westerly end line of the West End claim is a broken line. Appellant contends that no extralateral right whatsoever may be exercised under such circumstances since such right attaches only to mining claims possessing straight end lines."

1487½ The following diagram represents a cross section of the vein where the two limbs have been shown by development work to be united at the crest of the anticlinal fold.

(Here follows diagram marked p. 1488.)


Surface
JIM BUTLER
WEST END
MENAMARA
No 628.


N
MENAMARA
WEST END
JIM BUTLER
No 628.
Jas. Butler Tempest
Mining Co.
West End G. Mi. Co.
No 90

1489 *Opinion.*

By the Court, NORCROSS, *C. J.*:

This case presents two main questions of law, to-wit:

First. Whether the fact that the westerly end line of the surface area of the West End claim as patented, being not a straight, but a broken line, in and of itself deprives the owner of that claim of extralateral rights upon any vein apexing therein.

Second. Whether, within the meaning of the Act of Congress, the crest or crown of a vein which is found in the form of a single anticline may be regarded as the top or apex of the vein, and extralateral rights exist upon such vein in opposite directions.

The answer to these questions must be found in an interpretation of that portion of the mining act which contains the grant of extralateral rights and which reads as follows:

"The locators of all mining locations * * * shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth the top or apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes, or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges. And nothing in this section shall authorize the locator or possessor of a vein or lode which extends in its downward course beyond the vertical lines of his claim to enter upon the surface of a claim owned or possessed by another. (Section 2322, U. S. Rev. Stats.)"

1489½ The following diagram shows the relative position of the surface boundaries of the patented West End location:

[Here follows diagram marked p. 1490.]

The location would embrace a full claim 1500′ by 600′ excepting for the excluded area embraced within the two triangles 3, 3*a*, 4 and 7, 7*a*, 8. The lines 4, 5, and 1, 8 are parallel. While the plat and field notes, accompanying application for the patent, are not in the record, it is probable that they would disclose that the surface boundaries of the claim as located would include the two triangular pieces of ground above mentioned, and that the same were excluded from the patent application *eb*cause in conflict with prior existing locations. In every great mining district locations are made from time to time in every direction and a map of such a district presents a confusing mass of conflicting boundaries. In locating a claim the locator may lay his lines upon or across portions of prior
1491 existing claims in order to secure parallelism of end lines and thus secure to himself extralateral rights. Del Monte Case, 171 U. S. 55.

While a locator, prior to patent as well as after patent, may have no greater extent of extralateral rights than the extent of the vein within the boundaries of his surface rights, (2 Lindley, Sec. 574), he may, prior to patent, have his extralateral rights determined by planes parallel to planes passing through his located end lines, even though one or both of such located end lines are upon the surface ground of contiguous prior claims owned by other parties. This is the rule of the Del Monte and other cases. What reason, then, can exist in support of a proposition that because such owner obtained a patent for his claim he must forfeit extralateral rights because in his application for patent he excludes areas in conflict with prior claims, resulting in patented surface boundaries of irregular shape. There is, it seems to us, no reason why such a thing should be. Certainly the securing of a patent to a location ought not to leave a locator with less rights than he had before. That the mining laws are to be liberally construed in favor of the locator is a proposition now too well settled to need a citation of authorities. To hold that simply because the boundaries of the surface of a patented claim are so irregular in shape as not to present parallel end lines, dues to exclusions of conflicts, extralateral rights are lost, is to place upon the statute a construction contrary to its purpose as that purpose has frequently been enunciated. Lawson v. U. S. M. Co., 207 U. S. 1; 2 Lindley, Sec. 584.

1492 Even if this is a more liberal construction of the statute than is warranted, which we think it is not, nevertheless, so far as this particular case is concerned, it can not, we think, be said that the patented surface area of the West End claim does not present parallel end lines. The end lines 1, 8 and 4, 5 are each part of the original located end lines. They should, we think, still be considered end lines and the true end lines of the patented claim. To so hold requires that the line 3, 4 be regarded as a side line rather than as a part of a so-called broken end line. We think it should be so regarded. Side lines are not required to be parallel. No rule can well be applied governing courses and distances of side lines other than that they shall not be so laid as to increase the statutory width or length of a claim. The line 1, 8 is conceded to be an end line. But

if the line 4, 5 is not also an end line but rather a part of a broken end line, it is drawing a rather fine distinction to say that the lines 3, 4 and 4, 5 are parts of a broken end line and that the lines 7, 8 and 8, 1 are not. The difference is only in the degree of the angle and the length of the lines—a difference which has no reasonable basis upon which to support a distinction.

We think the ruling that the line 4, 5 is the westerly end line of the West End claim finds support in both reason and authority. Walrath v. Champion M. Co., 171 U. S. 293.

We come now to a consideration of the question whether extralateral rights exist upon a vein in the form of a single anticlinal fold. It is the contention of counsel for appellant that such rights do not exist for the reason, among others alleged, that the federal statute does not contemplate extralateral rights in opposite
1493 directions. It is the contention that only veins dipping in the same direction as the discovery vein may be followed extralaterally; that where within the same location a secondary vein is found dipping in the opposite direction as that of the discovery vein extralateral right thereon cannot be enjoyed. We think the statute is not susceptible of this construction. The statute gives to the locators—

"the exclusive right, possession and enjoyment of all the surface included within the lines of their locations and of all veins, lodes and ledges throughout their entire depth, the tops or apexes of which lie inside of such surface lines * * * although such veins, lodes or ledges may so far depart from the perpendicular in their course as to extend outside the vertical side lines of such surface locations."

Congress manifestly contemplated that the locator of a mining claim might discover more than one vein within his surface boundaries and provided that he should have "all veins, lodes and ledges, throughout their entire depth." But it is contended that the concluding portion of the section limiting extralateral rights between "vertical planes drawn downward * * * through the end lines * * * so continued in their own direction" negatives an intent to permit extralateral rights in opposite directions because the words "in their own direction" relate to but one direction, that of the dip of the discovery vein. We are unable to see the force of this contention. The direction of an end line depends upon which end of the line it is viewed from. The courses given in a patent of the two end lines of a claim usually, and doubtless invariably, are in opposite directions. It would be a strained construction and one, we think, not within the letter or spirit of the statute, to hold that end lines may be considered as having but one direction.
1493½ If a vein in the form of a single anticlinal fold may be said to have an apex, we think there is nothing in the statute which militates against extralateral rights upon such vein in opposite directions the same as though it were two veins with separate apices, instead of one vein.

The most serious question presented in this case is whether the vein in question may be said to have an apex. The vein is in the

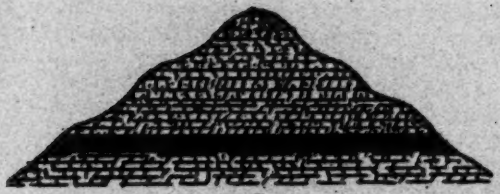
form of a single anticlinal fold and the precise question presented by a vein in such form appears never, heretofore, to have been determined.

Counsel for appellant, in their brief, say:

"The definition of the term 'apex' as employed in the mining statute involves the elements of terminal edge of a vein and downward course extending therefrom. According to this definition, the horizontal sheet '*a*' on figure 3 here inserted, and the anticlinal fold '*b*' have no apices, while the synclinal fold '*c*' has two apices."

* * *

(Here follow diagrams marked p. 1494.)

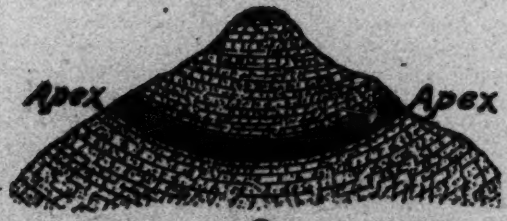


a

#628.

Jim Butler Pumpernickel Mining Co. in West End O. Mo. Co.

b



c

It is apparent that no extralateral rights could attach to a horizontal vein, as represented in sheet "a," because such vein has no "course downward" as prescribed in the statute. Such a vein has a top, if not an apex, in the strict sense of that word, and will support a valid location. Why a synclinal fold should be said to have
1495 two apices and an anticlinal fold have none, is not so easy to find a reason for unless we accept as conclusive appellant's contention that a terminal edge is essential to a true definition of the word "apex" as used in the statute. The words "terminal edge" are not used in the statute, nor have they been of universal use in defining an apex. The great majority of veins have terminal edges and in all such cases the apex of the vein is its terminal edge. If veins in the form of a single anticlinal roll were the rule rather than the rare exception, we are of the opinion that a contention that a terminal edge was essential to an apex would be as rare as the character of the vein now in question. It has been repeatedly said by courts and text writers that the words "top" and "apex" were not a part of the miner's terminology prior to the adoption of the federal mining statutes. They were words used by legislators to convey the intent of the framers of the statute. There is no controversy regarding the general purpose and intent of the mining statutes. The government as a matter of public policy was interested in the development of the mining resources of the nation. It offered to the prospector and miner the most liberal reward for his enterprise in discovering and developing the hidden treasures of the earth. It gave him the exclusive possession of the surface of every valid location made, placed no limit upon the number of such locations; gave him all veins, lodes and ledges throughout their entire depth, the top or apex of which were within his surface lines; it exacted no price for the land as a condition precedent to mining operations; and placed no restrictions upon him that were not consistent with the public purpose,
1496 such as requiring a minimum of annual labor as an evidence of good faith. To say that a miner fortunate enough to discover a valuable vein in the form of a single anticline shall not have extralateral rights upon each limb of his vein because, forsooth, the summit or crest of the anticlinal fold does not present a terminal edge as is the case of the ordinary form of a fissure vein, in our opinion, would do violence to the spirit, if not the very letter, of the statute. The well settled policy of the courts is to construe the statutes liberally in the interest of the miner. It has been determined that if the locator by inadvertence places his location crosswise instead of lengthwise of his vein he does not lose his extralateral rights but his side lines will be regarded as end lines and vice versa. So too, if his vein crosses an end and a side line, he will be given a new side line for purposes of determining the extent of his extralateral rights. So too, in the matter of discovery, the first essential to a valid location, the extreme liberality of the courts has been manifested in hundreds of cases.

If a locator finds his surface boundaries embrace the apices of two or more valuable veins, he is simply fortunate the same as the locator whose single ledge is more valuable than the one of his neigh-

bor. The statute makes no distinction between rights of locators based upon the value of the discoveries. Such distinctions are not within the policy of the statute.

The only difference between a vein in the form of a single anticlinal fold and the ordinary fissure vein is that the former has a crest, the limbs of which dip in opposite directions, while the latter has a terminal edge and a drop in but one direction. But this distinction presents no difference such as would violate the pur-
1497 pose of the statute if the crest of the former, like the terminal edge of the latter, should be held to constitute an apex.

The distinguished counsel for appellant in his great work on Mines, says:

"In the light of the rules announced in the previous articles, if a given mineral deposit is in place, it is a lode. The law assumes that the lode has a top, or apex, and provides for the acquisition of title by location upon this apex. A lode without an apex is not contemplated and no provision is made for locating it. It cannot be located under the placer laws, because these laws apply only to deposits not in place, and before it can be legally located as a lode, the apex, or top, must be found. If a location is made on the side or on the dip, whoever discovers and properly locates the apex will be entitled to enjoy the full rights accorded to regular valid lode locations, and the rights of those who have located on the side edge, or dip, must yield.

The most serious difficulty in defining the apex has arisen in connection with certain flat, or 'blanket' deposits, which have been judicially determined to be lodes within the meaning of the statutes. It is often quite impracticable to fix upon any exposure of such a deposit which properly constitutes the apex. It is true that after a lode patent is issued, the existence of an apex within the patented ground will be conclusively presumed, but not necessarily the apex of the vein in dispute. Nor will it be conclusively presumed that any particular exposure of the vein is that apex. It must still remain a question of proof." (Lindley on Mines, Vol. 1, 3rd Ed., Sec. 305.)

Can it be said with reason that a vein in the form of a single anticlinal fold was not intended to be the subject of a location within the meaning of the mining statutes because it does not possess a terminal edge? It is conceded that it is a vein or lode and it is well settled that it is one. "All valuable mineral deposits * * * are * * * free and open to exploration and purchase," is the language of the statute. (Rev. Stats., U. S., Sec. 2319.) The federal statutes clearly contemplated that the vein in question was subject to location, for it made no exclusions of veins of any particular character. If a vein without an apex is not contemplated and no
1498 provisions made for locating it, as the distinguished author says, then it follows as a necessary conclusion that the vein in controversy has an apex. If it has an apex, there is no other possible place for it to be than at the crest of the anticlinal fold.

It is contended, however, that the Supreme Court of the United States is committed to the view that a terminal edge is essential to an apex of a vein or lode, and the recent case of Stewart Mining Company v. Ontario Mining Company, 237 U. S. 350, is cited in support

of this contention. In that case, Mr. Justice McKenna, speaking for the Court, said:

"An apex is, on cited authority, defined to be 'all that portion of the terminal edge of a vein from which the vein has extension downward in the direction of the dip.' And it is further said that the definition has been approved in Lindley on Mines, because as therein expressed it 'involves the elements of terminal edge, and downward course therefrom.' We may accept the definition. In its application, however, it immediately encounters a question of fact—the locality of the terminal edge; and in this case the state courts did not find it to be where plaintiff asserted it to be."

The court in the Stewart-Ontario case did "accept the definition" of apex to be the terminal edge of the vein. The vein in controversy in that case had a terminal edge and there was no occasion to consider whether the definition given was comprehensive. The Idaho Court, from which the case reviewed, on error, had determined that that which the Stewart Company claimed was an apex was only the side of the vein where the vein on its strike was cut off by a fault. The Idaho Court was sustained. See same case, 23 Idaho 724, 132 Pac. 787 and Stewart M. Co. v. Bourne, 218 Fed. 327.

1499 As said by Chief Justice Marshall, in the celebrated case of Cohen vs. Virginia, 6 Wheat., at p. 399:

"It is a maxim not to be disregarded that general expressions in every opinion are to be taken in connection with the case in which those expressions are used. If they go beyond the case, they may be respected, but ought not to control a judgment in a subsequent suit when the very point is presented for decision. The reason of this maxim is obvious. The question actually before the court is investigated with care and considered in its full extent. Other principles which may serve to illustrate it are considered in their relation to the case decided, but their possible bearing on all other cases is seldom completely investigated."

This maxim has been reiterated times almost without number. It is applicable to the Stewart-Ontario decision. The definition was sufficient for the question involved in that case, otherwise we may assume the question would have been given more consideration than the laconic sentence—"We may accept the definition."

Judge Hawley, in Book v. Justice Mining Co., 58 Fed., at p. 121, in reference to the definition of a vein or lode, said:

"Various courts have at different times given a definition of what constitutes a vein, or lode, within the meaning of the Act of Congress; but the definitions that have been given, as a general rule, apply to the peculiar character and formation of the ore deposits, or vein matter," etc.

The Idaho Court, in the Stewart-Ontario case, supra, at p. 737, speaks of the definition of the word "apex" as follows:

"The definition of the word 'apex' as used in the statute (sec. 2322, U. S. Rev. Stats.) all reach the one inevitable conclusion that it is the highest point in the vein (Flagstaff Silver Min. Co. v. Tarbet, 98 U. S. 469, 25 L. ed. 253, 9 Morr. Min. Rep. 607; Lindley on Mines, 2d ed., secs. 305, 309; Costigan on Mining Laws, p. 137, sec.

35; Duggan v. Davey, 4 Dak. 110, 26 N. W. 887, 17 Morr.
1500 Min. Rep. 59; Del Monte Min. Co. v. Last Chance Min. Co.,
171 U. S. 55, 18 Sup. Ct. 895, 43 L. ed. 72, 19 Morr. Min. Rep. 370), but this is only a general definition, and its application to any particular vein or peculiar location may and often will call for further particularity of description. It must be the top or terminal edge of the vein on the surface or the nearest point to the surface, spur or feeder, just as the highest point in the roof of a house would be taken to be the apex of the house, and not the chimney or flagstaff. Again, an apex is a point from which the vein has a dip as well as strike or course else it confers no extralateral right."

Where a vein has a terminal edge its apex is a point from which, or a line along which, is its strike and from which it has a dip, but this is equally true of the crest of a vein in the form of a single anticlinal fold.

Counsel for appellant quote the following definitions from text writers in support of the terminal edge theory:

"Conceiving a vein or lode to be an intrusive sheet of mineralized matter of varying thickness found in the mass of the mountain, the apex of a vein is thus seen to be that edge of the sheet which shows on the surface of the location, or is nearest to the surface. It is not a point, though apex naturally suggests point. It is not a line, though it has the full extension of the upper edge of the lode. It is the whole surface of the upper edge of the vein, with all the width and length which that edge has." Costigan on Mining Law, 139-140.

"The mere fact that proximity to the surface is insufficient to establish the apex without the evidence that it is the upper edge or end of the vein." Barringer and Adams, The Law of Mines and Mining, p. 442.

"In the mathematical sense, an apex means the highest point; but it is not used in this sense in the statute. As used therein it means the edge or termination of the vein which comes to the surface of the earth, forming an outcrop, or which comes nearest to the surface of the earth when the vein terminates before it reaches the surface. * * * It may not be the highest point of a vein, as such highest point may be found in a swell of the vein." Shamel-Mining, Mineral & Geological Law, 193, 197.

1501 "The top or apex of a vein or lode is the highest point thereof and may be at the surface of the ground or at any point below the surface; the end or edge of a vein nearest the surface." Mines & Minerals, 27 Cyc., 537.

"The end or edge of a vein nearest the surface." Raymond—Glossary of Mining and Metallurgical Terms. Trans. Am. Inst. M. E., Vol. IX, p. 102.

It is quite manifest, we think, that all the definitions quoted are considering the ordinary form of vein. Definitions given by text writers are usually based on court decisions, and like such decisions are to be considered with reference to the facts upon which they are based.

From section 306 of Lindley on Mines, we quote:

"Webster defines an apex to be 'the top, point, or summit of anything.'

Compilers of dictionaries which have made their appearance since the act under consideration was passed have not been particularly lucid in their definitions. For instance:

Standard Dictionary:—

(1) The pointed or angular end, or highest point, as of a pyramid, spire, or mountain; extreme point; tip; top.

(2) The vertex of a plane or solid angle.

(3) The highest point of a stratum; as a coal seam.

Century Dictionary:—

(1) The tip, point, or summit of anything. In geometry, the angular point of a cone or conic section. The angular point of a triangle opposite the base.

(2) In geology, the top of an anticlinal fold of strata. This term, as used in United States Revised Statutes, has been the occasion of much litigation. It is supposed to mean something nearly equivalent to outcrop; but precisely in what it differs from outcrop has not been, neither does it seem capable of being, distinctly made out.

Evidently the courts even now can receive but little assistance from the lexicographers."

It appears, however, that the Century Dictionary, in an effort to give a comprehensive definition, regards "the top of an anti-
1502 clinal fold of strata" as an apex.

Counsel for appellant, in their brief, say:

"Probably the most interesting and instructive of all the adjudicated cases is the pioneer case of Duggan v. Davey, 4 Dak. 110, 26 N. W. 887. The decision of the Supreme Court of Dakota follows, in the main, the opinion given by the trial court. It is a lucid and masterly presentation of the law, and while an anticlinal roll was not there involved, several expressions of the court are well worth quoting in support of our contention that a terminal end or edge of a vein is an essential element of apex definition.

'The definition of the top or apex of a vein usually given is "the end or edge of a vein nearest the surface"; * * * Justice Goddard, a jurist of experience in mining law, in his charge to the jury in the case of Iron Silver v. Louisville, defines "top" or "apex" as the highest or terminal point of a vein "where it approaches nearest the surface of the earth and where it is broken on its edge, so as to appear to be the beginning or end of the vein" * * *' "

Some expressions of the court used just prior to the language last quoted are instructive:

"The definition of the top or apex of a vein usually given is: 'the end or edge of a vein nearest the surface:' and to this definition the defendants insist we must adhere with absolute literal and exclusive strictness, so that wherever, under any circumstances, an edge of a vein can be found at any surface, regardless of all other circumstances that is to be considered as the top or apex of the vein. * * * The definition given is no doubt correct under most circumstances, but, like many other definitions, is found to lack fullness and ac-

curacy in special cases; and I do not think important questions of law are to be determined by a slavish adherence to this letter of an arbitrary definition. It is indeed difficult to see how any serious question could have arisen as to the practical meaning of the terms 'top' or 'apex,' but it seems in fact to have become somewhat clouded. I apprehend if any intelligent person were asked to point out the top or apex of a house, a spire, a tree, or hill, he would have no difficulty in doing so, and I do not see why the same common sense should not be applied to a vein or lode."

1503 In the Duggan v. Davey case, the question was whether an exposed side of a vein caused by erosion or some other agency, upon which locations were made, constituted the apex of the vein. The question was substantially the same as that involved in the Stewart-Ontario case, supra. The same contention appears to have been made in this case based upon the fact that the westerly portion of the vein within the West End claim, by some titanic eruption of the earth's surface, had been cut off leaving a sharply defined but irregular broken edge.

The case of Illinois S. M. Co. v. Raff, 7 N. M. 336, 34 Pac. 544, is cited by counsel for appellant as "a case possessing many points of similarity to the case at bar." In that case the court said:

"We can recognize the definition of a vein as given by Judge Hallett in Hyman v. Wheeler, 15 Mor. 519, and still see that the jury in this cause might from the evidence have determined that here was a vast bed, lode, zone, or mass of mineral-bearing lime, with no foot wall and, in some localities, with no hanging wall or even cap,—in others covered with shale, the lime body extending throughout the Illinois, the Calamity, the Andy Johnson, Brush Heap, and locations west and south of the Illinois, as well as possibly other mines.

That this body or mass, zone, or lode of lime was broken or cut up into fissures, gashes, pockets, veins, etc., and these spaces filled with mineral, * * * in fact, we might accept either of the theories advanced by geologists and mineralogists as to the formation of the rock or deposit of mineral, and there would yet be nothing to prevent our reconciling that theory with the verdict of the jury in this cause, that there was neither a vein nor an apex upon the Illinois mine, or at least such a vein as could be followed beyond the side lines of that claim.

There may be a contact, and yet no contact vein. The mineral may be exposed, at a point upon one claim and followed continuously under the surface from this point to another property, though an undisputed vein between clearly defined hanging and foot walls, and still the point at which the mineral is exposed not be the apex of the vein which may have an apex ten miles distant, or may have no apex at all.

1504 * * * The zone or mass may follow the undulations of a broken country down into the valley and rising over the divides, cutting through, covered by or overlapping other formations, but until it is broken and the edges exposed or some edge or end as a beginning point found from which it can be followed down at some

angle below the horizontal, there is no apex from which it can be followed beyond the side lines of a claim located upon it."

The facts before the New Mexico Court were so different from those of the case at bar, that we think the case affords little aid in determining the question here.

Our attention has been directed to definitions of the word "apex," given in instructions to juries by Judge Hallett in the case of Iron Silver M. Co. v. Murphy, 3 Fed. 368, and by Justice Miller in the case of Stevens v. Williams, Fed. Cas. No. 13,413, both cases growing out of the peculiarities of the Leadville ore deposits. Referring to the character of these ore deposits, Lindley at Sec. 300 says:

"The blanket deposits at and in the vicinity of Leadville, Colorado, have given rise to most of the controverted questions on the subject of 'lodes,' 'veins,' 'in place,' 'top,' and 'apex'; and the burden of solving many of these difficulties in the first instance fell to the lot of Judge Hallett. His decisions have furnished the text for other courts, in other jurisdictions, where analogous conditions have been to a limited extent encountered."

Again in Sec. 311, the author says:

"As in almost all other phases of the mining law, the flat deposits of Leadville have produced their full quota of adjudicated law on the subject of 'tops' and 'apices.' As these deposits are legally held to be veins, or lodes, of rock in place, subject to mineral location, the law contemplated that they should have apices."

The section includes a number of figures illustrative of the Leadville formation, none of which present any similarity to the vein in controversy here.

Justice Miller instructed the jury relative to the facts in the Stevens case, supra, among other matters, as follows:

1505 "The top or apex of a vein, within the meaning of the act of Congress, is the highest point of that vein where it approaches nearest to the surface of the earth, and where it is broken on its edge so as to appear to be the beginning or end of the vein. The word 'outcrop' has been used in connection with it. * * *; it means the nearest point at which it is found toward the surface of the earth. And where it ceases to continue in the direction of the surface, is the top or apex of that vein. It is said in this case that the point claimed to be the top or apex is not such, because at the points where the plaintiff shows or attempts to prove an interruption of that vein, in its ascent towards the surface, and what he calls the beginning of it, the defendants say that is only a wave or roll of the general shoot of the metal, and that from that point it turns over and pursues its course downwards as a part of the same vein, in a westerly or southwesterly direction. It is proper I should say to you, if the defendants' hypothesis be true, if that point which the plaintiff calls the 'highest point,' the 'apex' is merely a swell in the mineral matter, and that it turns over and goes on down in a declination to the west, that it is not a true apex within the statute. It does, not mean merely the highest point in a continuous succession of rolls or waves in the elevations and depressions of the mineral nearly horizontal."

We have here a very different state of facts than were involved

in the Leadville cases. In those cases the court was dealing with a mineral formation nearly horizontal or varied by a series of anticlinal and synclinal rolls. Here we have a vein in the form of a single anticline.

The Land Commission created by the act of Congress of March 3, 1879, sought and obtained, among other matters, many definitions of the word "apex" as used in the mining statutes. Many of these definitions are embodied in Sec. 307 of Lindley. Relative to these definitions, the author says:

1506 "Judge Beatty, then chief justice of Nevada, gave the clearest and most comprehensive of all the definitions. It is as follows:

The top, or apex, of any part of a vein is found by following the line of its dip up to the highest point at which vein-matter exists in the fissure. According to this definition, the top, or apex, of a vein is the highest part of the vein along its entire course. If the vein is supposed to be divided into sections by vertical planes of right angles to its strike, the top, or apex, of each section is the highest part of the vein between the planes that bound that section. * * *

Of course, there are irregular mineral deposits departing widely in their characteristics from the typical or ideal vein which seems to have been in the mind of the framer of the act of 1872. To such deposits the foregoing definitions will not apply; and, in my opinion, great difficulty will be experienced in any attempt to apply the existing law to them."

If we apply the definition of Judge Beatty to the vein here involved, and follow the line of the dip of either or both limbs of the anticline to the highest point, we come to the crest. There is nothing in this definition which militates against the crest of the anticlinal roll being the apex of the vein unless it is assumed or conceded that a vein can have but a dip in one direction.

There can be and there is no question in this case but that the so-called West End-McNamara vein was subject to location. If it be true, and we assume that it is, that the law contemplates that every vein has an apex, (Lindley, Secs. 305, 311), then it necessarily follows, we think, that the crest of the anticlinal roll is the apex. Certainly by no process of reasoning can it be said that the apex lies in either Jim Butler or McNamara ground, except as the crest of the

anticline may be in McNamara territory after it corsses the northerly ende line of the West End claim.

The judgment is affirmed.

NORCROSS, *C. J.*

We concur:
McCARRAN, *J.*
COLEMAN, *J.*

Attest:
A true and verified copy.
H. R. MIGHELS, *Clerk.*

Attest:
A full, true and correct copy.
JOHN E. RICHARDS,
Official Reporter.

1506½ [Endorsed:] No. 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company, a corporation, appellant, vs. West End Consolidated Mining Company, respondent. Opinion by Norcross, C. J. Filed July 3, 1916, H. R. Mighels, Clerk, by —— ——, Deputy.

1507 In the Supreme Court of the State of Nevada.

No. 2195.

JIM BUTLER TONOPAH MINING COMPANY, a Corporation, Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY, a Corporation, Respondent.

Judgment.

This cause having been heretofore heard, submitted, and taken under advisement by the court, and the court having fully considered the same, now on this day the decision of the court is delivered by Chief Justice Norcross, to the effect that the judgment of the trial court be affirmed.

It is, therefore, considered, adjudged and decreed by the court that the judgment of the Fifth Judicial District Court of the State of Nevada, in and for the County of Nye, in the above entitled cause, be and the same hereby is affirmed, with costs in favor of respondent.

[Seal, Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk Supreme Court, State of Nevada.

Dated this 3rd day of July, 1916.

1508 In the Supreme Court of the State of Nevada.

No. 2195.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY (a Corporation), Respondent.

Order.

Heretofore an Order was made and filed herein under date July seventh, 1916, giving the Appellant thirty days in addition to the time allowed by law, within which to file a petition for rehearing herein.

Good cause appearing therefor, it is hereby ordered that the said Order of July seventh, 1916, extending the time of Appellant to file petition for rehearing herein, be, and the same is hereby, withdrawn, canceled and annulled; and *if* further appearing that the Appellant has declared in open court that the Appellant does not intend to file a petition for rehearing herein, and will not file such petition, therefore, it is ordered that the time within which such petition might be filed is hereby shortened and shall expire on July 31st, 1916.

Dated: August first, 1916.

F. H. NORCROSS,
Chief Justice.

Attest:
H. R. MIGHELS,
Clerk Supreme Court, State of Nevada.

1509 In the Supreme Court of the State of Nevada.

No. 2195.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY, (a Corporation), Respondent.

Petition for Writ of Error.

To the Honorable F. H. Norcross, Chief Justice of the Supreme Court of the State of Nevada:

The petition of the Jim Butler Tonopah Mining Company, a corporation existing under the laws of the State of Delaware, respectfully shows:—

That on the 3rd day of July, 1916, the Supreme Court of the State

a rendered a final judgment against your petitioner in a rein your petitioner was appellant, and the West End Con- Mining Company, a corporation, was respondent, affirming nent of the District Court of the Fifth Judicial District of of Nevada, in and for Nye County, in said cause, and that eme Court of the State of Nevada is the highest court in said which a decision can be had.

That as appears from the record in said cause, your peti- ner is, and at all times mentioned in the pleadings in this use has been the owner and entitled to the possession of two tented lode mining claims situated in the Tonopah Mining Nye County, Nevada, known as and called respectively the nd Curtis mining claims. That said respondent was the a certain patented lode mining claim known as and called End mining claim, which adjoins the patented claims of on the North.

ner appears from said record that the title to the respective claimed by the respective parties, became vested in the re- arties or their grantors by virtue of patents issued by the tates under the provisions of Title XXXII, Chapter Six, Statutes of the United States.

her appears from said record that prior to the commence- aid action the Respondent had entered upon and under- surface of Appellant's Eureka and Curtis Lode Claims, and acted and removed, and was, when said action was com- engaged in extracting and removing ore and valuable min- from. Said action was brought by appellant to determine ship of the vein and the ore therein underneath the surface l claims, and to recover damages from Respondent for the and removal of said ore.

The Respondent in its answer claimed the ownership of the e bodies in dispute by reason of the alleged existence within e boundaries of its West End claim of the top or apex of the tuated within the boundaries as to confer upon Respondent to pursue the vein on its downward course underneath the f the Appellant's Eureka and Curtis claims.

ant controverted this asserted extralateral right by assert- the vein in question was in the form of an anticlinal vein, o top or apex or terminal edge within Respondent's claim, ted that under its patent for the Eureka and Curtis claims, r the provisions of Title XXXII, Chapter Six, of the Re- tutes of the United States, Appellant was the owner of the s in dispute.

ial court found as a fact that as claimed by Appellant said anticlinal in form, with two limbs descending into the earth te directions, but further held and decided that as a matter he crest or axis of the anticlinal vein constituted the top or he vein within the meaning of Section 2322 of the Revised of the United States.

ant further contended and claimed that said Respondent entitled to follow said vein underneath the surface of its

Eureka and Curtis claims, because the end lines of said West End claim were not parallel, as required by Section 2322 of the Revised Statutes of the United States, but that the west end boundary
1512 of said claim was broken and consisted of two lines having different directions. Appellant therefore asserted before said trial court that it was the owner of the vein in dispute underneath the surface of its Eureka and Curtis claims.

The trial court overruled the several contentions and claims so made and urged by Appellant, and awarded judgment in favor of Respondent.

An appeal was taken by the Appellant to the Supreme Court of the State of Nevada, and on said appeal Appellant made the same claims and contentions as were made by it in the trial court, that is to say, that Appellant in said last named court urged and claimed that by reason of the fact that the vein was anticlinal in form, and had no top or apex within said West End mining claim, and that the crest or axis of an anticlinal vein was not the top or apex of the vein, within the intent and meaning of Section 2322 of the Revised Statutes of the United States, and that therefore Appellant was the owner of the vein underneath the surface of its Eureka and Curtis claims, under its patent to said claims issued pursuant to Title XXXII, Chapter Six, of the Revised Statutes, and that Respondent had no right or title thereto.

Appellant further set up and claimed in said Supreme Court of Nevada that by reason of the fact that the end lines of said West End claim were not parallel, as required by Section 2322 of the Revised Statutes of the United States, but one of them was broken and consisted of two lines having different directions, the Respondent
1513 was not entitled to follow said vein downward into and underneath the surface of Appellant's said Eureka and Curtis claims, and that Appellant was the owner of the vein underneath the surface of said claims under its patents to said claims, and under the provisions of Title XXXII, Chapter Six, of the Revised Statutes of the United States.

Said Supreme Court of the State of Nevada overruled all the contentions of Appellant and entered a judgment on July 3rd, 1916, affirming the judgment of the trial court.

Said Supreme Court of Nevada in entering said judgment held and decided that the vein in controversy was a single anticlinal vein, the axis or crest of said anticline being within the boundaries of the West End claim of Respondent; that said axis or crest of said anticline constituted in law the top or apex of said vein within the meaning of Section 2322 of the Revised Statutes of the United States, and that Respondent had a right to follow said vein in both directions downward from the axis or crest of said anticline, the Southerly limb of which extended into and underneath the surface of Appellant's Eureka and Curtis claims, by which decision and holding Appellant was deprived of a right accruing to it under and by virtue of its patents to said claims and under and by virtue of the provisions of Title XXXII, Chapter Six, of the Revised Statutes of the United

States, to-wit, the ownership of said vein underneath the surface of said Eureka and Curtis claims.

1514 Said Supreme Court of the State of Nevada further held and decided that although the end lines of Respondent's West End claim were not parallel throughout, and the west end boundary of said claim was a broken line consisting of two parts having different directions, said Respondent was entitled to follow said vein on its downward course into and underneath the surface of Appellant's Eureka and Curtis claims, by which decision and ruling Appellant was deprived of a right accruing to it under and by virtue of its patents to said claims, and under and by virtue of the provisions of Title XXXII, Chapter Six, of the Revised Statutes of the United States, to-wit, the ownership of said vein underneath the surface of said Eureka and Curtis claims.

The Federal questions involved in said cause, and which were necessarily considered by both the trial and appellate court, and which were raised at all stages of the case in both of said courts, are thus stated by the Supreme Court of Nevada in its decision and judgment in said cause:

"This case presents two main questions of law:

First. Whether the fact that the westerly end line of the surface area of the West End claim as patented, being not straight, but a broken line, in and of itself deprives the owner of that claim of extra-lateral rights upon any vein apexing therein.

Second. Whether within the meaning of the Act of Congress, the crest or crown of a vein which is found in the form of a single anticline may be regarded as the top or apex of the vein, and extra-lateral rights exist upon such vein in opposite directions.

The answer to these questions must be found in an interpretation of that portion of the Mining Act, which contains the grant of extra-lateral rights * * *."

1515 Comes now the aforesaid Jim Butler Tonopah Mining Company, Appellant herein, by its attorneys, Curtis H. Lindley and Hugh H. Brown, and petitions this Honorable Court for an order allowing said Appellant to prosecute a writ of error herein to the Honorable Supreme Court of the United States, under and in accordance with the laws of the United States in that behalf made and provided.

Also, that an order be made fixing the amount of security which the Appellant herein shall give upon said writ, as required by the laws of the United States and by the rules of the Supreme Court of the United States, and in fixing the amount of such security so to be given by Appellant, the giving heretofore of the undertaking on appeal staying the execution under the laws of the State of Nevada, be taken into consideration, and that Appellant be allowed the full benefit of said existing bond now in force, securing the Respondent for the payment of the full amount of any judgment which may be awarded to it by the affirmance of said judgment, in whole or any part thereof.

And that such other and further order be made relative to said security to Respondent as may be meet in the premises, to the end

that the granting of the said writ of error and the making of said order as to such security, and the compliance of the terms of said order by Appellant, shall operate as a supersedeas in said action, and that in the giving of such security all further proceedings in
1516 the District Court of the Fifth Judicial District of the State of Nevada, in and for Nye County, and in the Supreme Court of the State of Nevada, be suspended and stayed until the determination of said cause upon said writ of error by the Supreme Court of the United States.

CURTIS H. LINDLEY,
HUGH H. BROWN,
Attorneys for Petitioner.

Writ of error allowed upon the execution of a bond by Jim Butler Tonopah Mining Company in the sum of Two Thousand Dollars; said bond when approved to act as a supersedeas.
Dated August 1st, 1916.

F. H. NORCROSS,
Chief Justice of the Supreme Court of Nevada.

Attest:
H. R. MIGHELS,
Clerk Supreme Court, State of Nevada.

1516½ [Endorsed:] No. 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company, a corporation, Appellant, vs. West End Consolidated Mining Company, a corporation, Respondent. Petition for Writ of Error. Filed August 1, 1916. H. R. Mighels, Clerk. Curtis H. Lindley, 604 Mills Building, San Francisco, California, and Hugh H. Brown, Tonopah, Nevada, Attorneys for Appellant.

1517 In the Supreme Court of the State of Nevada.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY (a Corporation), Respondent.

Assignment of Errors.

Comes now the Jim Butler Tonopah Mining Company, a corporation, Appellant in the above-entitled cause, by its counsel, and files the following assignment of errors upon which it will rely upon its prosecution of the writ of error in the above-entitled cause.

And in this behalf Appellant respectfully represents that the Supreme Court of the State of Nevada erred in its decision and judgment in said cause, as manifestly appears from the record therein, and that the errors so committed by said court are as follows:

I.

The said Court erred in holding and deciding that the crest or axis of the anticlinal vein in controversy in this action con-
1518 stituted in law such a top or apex of the vein within the meaning and intent of Section 2322 of the Revised Statutes of the United States, as conferred upon the Respondent a right to follow said vein and extract and remove the ore therefrom underneath the surface and within the vertical boundaries of Appellant's patented mining claims, the Eureka and Curtis.

II.

The said Court having found and decided that the vein, the ownership of which is in controversy in this action, commonly called the West End-MacNamara Vein, was a single vein underlying the properties of both Appellant and Respondent, that such vein was in the form of an anticline or anticlinal fold, one of the limbs descending into the earth in a Northerly direction, the other in a Southerly direction, the Defendant's discovery and discovery shaft in the West End claim being situated on the Northerly dipping limb of said anticlinal vein, the said Court erred in holding and deciding that the Defendant had a right to follow said vein on the downward course of the Southerly dipping limb into and underneath the surface of the Eureka and Curtis patented claims of Appellant.

III.

The said Court erred in holding and deciding that under Section 2322 of the Revised Statutes of the United States, the words "top or apex" of a vein, as contained in said section, does not require that the vein should have a terminal edge within the bounda-
1519 ries of a claim, in order to entitle the owner of the claim to follow the vein on its downward course into lands adjoining, and said Court erred in holding and deciding that the crest or axis of an anticlinal vein constituted the top or apex of a vein within the meaning of said Section 2322 of the Revised Statutes of the United States.

IV.

The said Court having found and decided that the vein, the ownership of which is in controversy in this action, commonly called the West End-MacNamara Vein, was a single vein underlying the properties of both Appellant and Respondent, that such vein was in the form of an anticline or anticlinal fold, one of the limbs of which descended into the earth in a northerly direction, and the other in a southerly direction, and that said vein had no terminal edge within the boundaries of Respondent's West End claim, the said Court erred in holding and deciding that the defendant had a right to follow said vein on its downward courses in opposite directions,

to-wit, in a Northerly and Southerly direction from the crest or axis of the anticlinal vein.

V.

The Court erred in holding and deciding that the owner of a lode mining claim having therein the tops or apexes of two veins descending into the earth in opposite directions, may follow both veins on their opposite downward courses into and underneath the
1519½ lands adjoining, and the Court further erred in holding and deciding that the same rule should apply, and which the said Court by its holding and decision applied to the single anticlinal West End Vein, having its axis or crest within Respondent's West End claim.

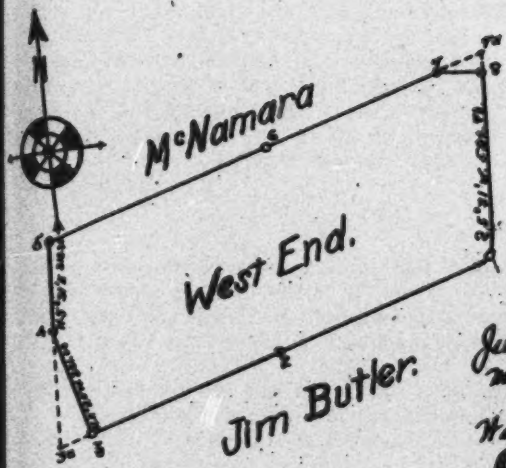
VI.

The said Court erred in holding and deciding that the Respondent was the owner and entitled to the possession of that part of the anticlinal vein commonly known as the West End-MacNamara Vein, which lies underneath the surface and within the vertical boundaries of Appellant's patented Eureka and Curtis claims.

VII.

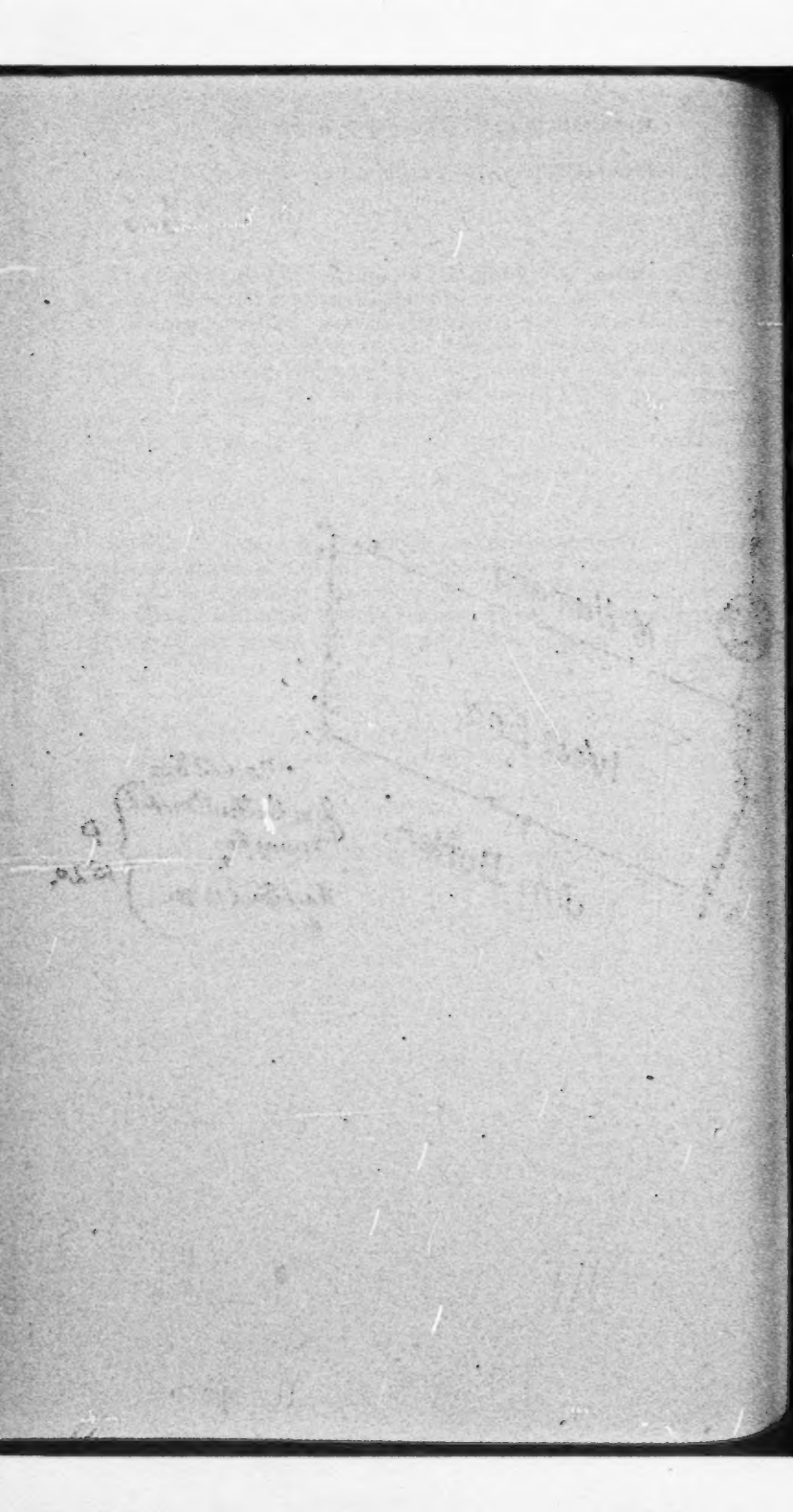
The Court in its decision presented a diagram showing the exterior boundaries of the West End claim, which diagram is herewith reproduced.

(Here follows diagram marked p. 1520.)



No 628.

Jim Butler Mnfg. Co. }
Mining Co. } P
West End C. M. Co. } 1520.



1521 The Court held and decided that the line 1-8 on said diagram and the line 4-5 were the legal end lines of the claim, and that the line 4-3 was a side line. The court erred in holding and deciding that said lines 1-8 and 4-5 were the legal end lines of said claim, and also erred in holding and deciding that said line 4-3 was a side line.

VIII.

The Court erred in holding and deciding that under Section 2322 of the Revised Statutes of the United States, end lines need not be parallel throughout, and that if one end line is straight and the other broken, one being parallel to the other for a part of the distance only and then changing its direction, that the true end lines of the claim are the parallel parts of said end boundaries, and the other lines are side lines, and the Court erred in holding and deciding that the Respondent was entitled to follow the vein in controversy on its downward course into and underneath the surface of Appellant's patented Eureka and Curtis claims, between planes drawn through the lines marked 1-8 and 4-5 on the diagram set forth under assignment VII and such planes extended indefinitely in their own direction Southerly.

IX.

The said Court erred in holding and deciding that Appellant was not the owner of that portion of the vein in controversy which lies underneath the surface and between the vertical boundaries of the Eureka and Curtis patented claims of Appellant.

1522 Wherefore, the Appellant, Jim Butler Tonopah Mining Company, prays that for the errors aforesaid appearing in the record of the Supreme Court of Nevada in said cause to its prejudice, the said judgment and decision may be reversed.

CURTIS H. LINDLEY,
HUGH H. BROWN,
Attorneys for said Jim Butler Tonopah Mining Company.

1522½ [Endorsed:] No. 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company, a corporation, Appellant, vs. West End Consolidated Mining Company, a corporation, Respondent. Assignment of Errors. Filed August 1, 1916. H. R. Mighels, Clerk. Curtis H. Lindley, 604 Mills Building, San Francisco, California, and Hugh H. Brown, Tonopah, Nevada, Attorneys for Appellant.

1523 In the Supreme Court of the State of Nevada.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Appellant,

vs.

WEST END CONSOLIDATED MINING COMPANY (a Corporation), Respondent.

Bond.

Know all men by these presents:

That we, Jim Butler Tonopah Mining Company, a corporation, as principal, and United States Fidelity & Guaranty Company, as surety, are held and firmly bound unto West End Consolidated Mining Company, a corporation, in the sum of Two Thousand and no/100 Dollars, lawful money of the United States, to be paid unto the said obligee, its successors and assigns, for which payment well and truly to be made, we bind ourselves and each of our successors and assigns jointly and severally by these presents.

Dated this 1st day of August, 1916.

Whereas, lately, at a session of the Supreme Court of the State of Nevada, in a suit pending in said Court between Jim
1524 Butler Tonopah Mining Company, Appellant, and West End Consolidated Mining Company, Respondent, a final judgment was rendered against the said Jim Butler Tonopah Mining Company, Appellant, and the said Jim Butler Tonopah Mining Company having obtained the allowance of a writ of error and filed a copy thereof in the Clerk's office of the said Court, to reverse the judgment in the aforesaid suit, and a citation directed to the said West End Consolidated Mining Company, citing and admonishing it to be and appear at the Supreme Court of the United State at Washington within sixty days from the date thereof;

Now the condition of the above obligation is such, that if the said Jim Butler Tonopah Mining Company shall prosecute said writ of error to effect and answer all damages and costs if it fails to make its plea good, then the above obligation to be void; otherwise to remain in full force and virtue.

JIM BUTLER TONOPAH MINING COMPANY,
By CHARLES DUCHENEAU,
As Its Auditor and Attorney in Fact,
By HUGH H. BROWN, *As Its General Counsel.*
UNITED STATES FIDELITY & GUARANTY COMPANY,
By R. J. HIGHLAND.

Signed and Delivered in the presence of
E. A. KEENAN.

Approved, to operate as a supersedeas, by,
F. H. NORCROSS,
Chief Justice of the Supreme Court of the State of Nevada.

Attest:
H. R. MIGHELS,
Clerk Supreme Court, State of Nevada.

1524½ [Endorsed:] 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company, a Corporation, Appellant, vs. West End Consolidated Mining Company, a Corporation, Respondent. Bond. Filed August 1, 1916. H. R. Mighels, Clerk. Curtis H. Lindley, 604 Mills Building, San Francisco, California and Hugh H. Brown, Tonopah, Nevada, Attorneys for Appellant.

1525 *Writ of Error.*

UNITED STATES OF AMERICA, *ss:*

The President of the United States of America to the Honorable the Justices of the Supreme Court of the State of Nevada, Greeting:

Because in the record and proceedings, and also in the rendition of the judgment of a plea which is in the Supreme Court of the State of Nevada before you, or some of you, being the highest court of law or equity of the said State in which a decision could be had in an action or suit between the Jim Butler Tonopah Mining Company, a corporation, Plaintiff and Appellant, and West End Consolidated Mining Company, a corporation, Defendant and Respondent, wherein rights, privileges and immunities are claimed under the Statutes of the United States, and the decision was against the rights, privileges and immunities specially set up and claimed under such statutes, a manifest error hath happened, to the great damage of the said Jim Butler Tonopah Mining Company, as by its complaint appears, and we being willing that the error, if any there hath been, should be duly corrected, and full and speedy justice done to the parties aforesaid in this behalf, you are hereby commanded, if judgment be therein given, that then, under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the Supreme Court of the United States, together with this writ, so that you have the same at Washington on the 30th day of September,
1526 1916, in the said Supreme Court of the United States, to be there and then held, that the record and proceedings aforesaid *be* inspected, the said Supreme Court of the United States may cause further to be done therein to correct that error, what of right and according to the laws and customs of the United States should be done.

Witness the Hon. Edward D. White, Chief Justice of the United States, this 1st day of August in the year of our Lord one thousand nine hundred and sixteen.

[Seal District Court, District of Nevada.]

T. J. EDWARDS,
Clerk of the United States District Court
for the District of Nevada,
By H. D. EDWARDS, *Deputy.*

The above writ of error is hereby allowed.

F. H. NORCROSS,
Chief Justice of the Supreme Court of the State of Nevada.

Attest:

[Seal Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk Supreme Court, State of Nevada.

1526½ [Endorsed:] No. 2195. Writ of Error. To the Honorable the Justices of the Supreme Court of the State of Nevada, in the Case of Jim Butler Tonopah Mining Company against West End Consolidated Mining Company. Lodged August 2, 1916. H. R. Mighels, Clerk.

1527 *Citation.*

UNITED STATES OF AMERICA, *ss:*

To the West End Consolidated Mining Company, Greeting:

You are hereby cited and admonished to be and appear at the Supreme Court of the United States at Washington, D. C., within sixty days from the date hereof, pursuant to a writ of error filed in the office of the Clerk of the Supreme Court of the State of Nevada, wherein the Jim Butler Tonopah Mining Company is plaintiff in error and you are defendant in error, to show cause, if any there be, why the judgment rendered against the said plaintiff in error, as in the said writ of error mentioned, should not be corrected, and why speedy justice should not be done to the parties in that behalf.

Witness the Hon. F. H. Norcross, Chief Justice of the Supreme Court of the State of Nevada this 1st day of August 1916.

F. H. NORCROSS,
Chief Justice of the Supreme Court of the State of Nevada.

Attest:

[Seal Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk of the Supreme Court of the State of Nevada.

Service of the foregoing citation admitted and receipt of copy thereof acknowledged this 2nd day of August, 1916.

PECK, BUNKER & COLE,
DICKSON, ELLIS, ELLIS & SCHULDER,
CHENEY, DOWNER, PRICE & HAWKINS,
H. H. ATKINSON,
Attorneys for West End Consolidated Mining Company, Defendant in Error.

1527½ [Endorsed:] No. 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company,

a Corporation, Appellant, vs. West End Consolidated Mining Company, a Corporation, Respondent. Citation to West End Consolidated Mining Company. Filed August 2, 1916. H. R. Mighels, Clerk. Curtis H. Lindley, 604 Mills Building, San Francisco, California and Hugh H. Brown, Tonopah, Nevada, Attorneys for Appellant.

1528 In the Supreme Court of the State of Nevada.

No. 2195.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Appellant,

vs.

WEST END CONSOLIDATED MINING COMPANY (a Corporation), Respondent.

Certificate of Lodgment.

I, H. R. Mighels, Clerk of the Supreme Court of the State of Nevada, do hereby certify that on the 1st day of August, 1916, the original of the foregoing supersedeas bond was lodged with me, as such clerk, and the following endorsement made thereon:

"Filed August 1, 1916. H. R. Mighels, Clerk."

I also certify that the original of the foregoing writ of error was lodged with me, as the clerk of said court, on the 2nd day of August, 1916, and the following endorsement made upon the said original writ: "Lodged August 2, 1916, H. R. Mighels, Clerk." A copy thereof also was lodged for said West End Consolidated Mining Company.

In witness whereof, I have hereunto set my hand and affixed the seal of the Court this 2nd day of August, 1916.

[Seal Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk of the Supreme Court of the State of Nevada.

1528½ [Endorsed:] 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company, (a Corporation), Appellant, vs. West End Consolidated Mining Company, (a Corporation), Respondent. Certificate of Lodgment. Filed August 1, 1916. H. R. Mighels, Clerk. Hugh H. Brown, J. H. Evans, Attorneys at Law, 312-316 State Bank and Trust Co. Building, Tonopah, Nevada.

1529 In the Supreme Court of the State of Nevada.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation),
Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY (a Corporation),
Respondent.

Order for Transmission of Exhibits to Clerk of the Supreme Court of United States.

On motion of the attorneys for Appellant,

It is ordered that in addition to the transcript of the record on appeal in this action, the Clerk of the Court certify and transmit to the Clerk of the Supreme Court of the United States the exhibits, maps, and models in said cause, to be by him safely kept and returned to this Court on the final determination of said cause in said Supreme Court.

Dated this 1st day of August, 1916.

F. H. NORCROSS,
Chief Justice.

1529½ [Endorsed:] 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company, a Corporation, Appellant, vs. West End Consolidated Mining Company, a Corporation, Respondent. Order for Transmission of Exhibits to the Clerk of the Supreme Court of the United States. Filed August 2, 1916. H. R. Mighels, Clerk. Curtis H. Lindley, 604 Mills Building, San Francisco, California and Hugh H. Brown, Tonopah, Nevada, Attorneys for Appellant.

1530 In the Supreme Court of the State of Nevada.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation),
Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY (a Corporation),
Respondent.

Præcipe.

To the Clerk of the above entitled court:

You will please prepare transcript of the record of the cause above entitled, to be filed in the office of the Clerk of the Supreme Court of the United States, pursuant to the command of the writ of error issued in said cause, and you will please identify and certify, for transmission to the Clerk of the Supreme Court of the United States with said transcript, the exhibits in said cause. Said transcript to consist of a copy of the record on appeal in said cause, the opinion of the Supreme Court of the State of Nevada, the petition for writ of

error, assignments of error, order with reference to certification and transmission of exhibits, maps and models, and bond on writ of error to Supreme Court of the United States.

You will also transmit in connection with said papers to the
1531 Clerk of the Supreme Court of the United States the original writ of error and original citation.

Dated this 2nd day of August, 1916.

CURTIS H. LINDLEY,
HUGH H. BROWN,
Attorneys for Appellant.

Service admitted Aug. 2, 1916.
PECK, BUNKER & COLE.
DICKSON, ELLIS, ELLIS & SCHULDER.
CHENEY, DOWNER, PRICE & HAWKINS.
H. H. ATKINSON.

1531½ [Endorsed:] No. 2195. In the Supreme Court of the State of Nevada. Jim Butler Tonopah Mining Company, a corporation, appellant, vs. West End Consolidated Mining Company, a corporation, respondent. Præcipe. Filed August 2, 1916. H. R. Mighels, Clerk. Curtis H. Lindley, 604 Mills Building, San Francisco, California, and Hugh H. Brown, Tonopah, Nevada, Attorneys for Appellant.

1532 In the Supreme Court of the State of Nevada.

No. —.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation),
Appellant,
vs.
Respondent.
WEST END CONSOLIDATED MINING COMPANY (a Corporation),

Clerk's Certificate.

I, H. R. Mighels, Clerk of the Supreme Court of the State of Nevada, do hereby certify that the foregoing, from page one to page 1540 inclusive, is a complete and true transcript of the record and proceedings in the case of Jim Butler Tonopah Mining Company, a corporation, Appellant, versus West End Consolidated Mining Company, a corporation, Respondent, with the exception of the exhibits introduced in evidence in said cause and referred to in said transcript, as appears from the papers and record in said cause on file in my office; that there is also included in said transcript a true and complete copy of the Opinion of the Supreme Court of the State of Nevada in said cause and of the Petition of the Appellant above-named for the Writ of Error annexed hereto and of the Assignment of Errors filed in connection with said Petition.

I further certify that pursuant to an Order of the Chief Justice of

the Supreme Court of the State of Nevada the exhibits in said
1533 cause, consisting of models, maps, and other things, are identified by me and certified separately for transmission with this transcript, to the office of the Clerk of the Supreme Court of the United States in Washington, D. C.

I also certify that there is attached to said transcript the Writ of Error and Citation issued in said cause, which, together with the said transcript and exhibits, are to be transmitted to the Supreme Court of the United States in obedience to the command of said Writ of Error.

Witness my hand and the seal of said Court this 7th day of August, 1916.

[Seal Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk of the Supreme Court of the State of Nevada.

[United States internal revenue documentary stamp, series of 1914, ten cents, canceled 8/8/1916. H. R. M.]

1534 In the Supreme Court of the State of Nevada.

No. —.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation),
Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY (a Corporation),
Respondent.

Certificate of Clerk to Exhibits.

I, H. R. Mighels, Clerk of the Supreme Court of the State of Nevada, do hereby certify that I have identified and transmitted to the Clerk of the Supreme Court of the United States at Washington, D. C., the following Exhibits in the above-entitled case, the same having been certified by the Clerk of the District Court of the Fifth Judicial District of the State of Nevada, in and for the County of Nye, after having been introduced in evidence in said case in the lower court, and having been transmitted by him to this Court on the appeal of said case:

1535 EXHIBITS.

Appellant's Exhibits.

1—Map.
2—Model.
3—Model.
4—Model.
5—Assay Estimate sheets.
6—Assay Certificate Sheets.
7—Patent.
8—Patent.
Wiley Cross "1"—Photograph.
Wiley Cross "2"—Photograph.

Wiley Cross "3"—Diagram.
Winchell Cross "1"—Diagram.
Winchell Cross "2"—Sample Rock.
Winchell Cross "3"—Sample Rock.
Winchell Cross "4"—Diagram.
Winchell Cross "5"—Diagram.—?
Winchell Cross "6"—Diagram.
Finch "1"—Diagram.
Finch "2"—Diagram.
Finch "3"—Diagram.
Finch "4"—Diagram.
Finch "5"—Diagram.
Finch "6"—Diagram.
Finch "7"—Diagram.
Finch "8"—Sample Rock.
Finch "9"—Sample Rock.
Finch Redirect "1"—Diagram.
1536 Siebert "1"—Diagram.
Siebert "2"—Diagram.
Siebert "3"—Sample Rock.
Siebert "4"—Sample Rock.
Searles "1"—Diagram.
Searles "2"—Photograph.
Searles "3"—Photograph.
Searles "4"—Diagram.
Searles "5"—Sample Rock.
Searles "6"—Sample Rock.
Searles "7"—Sample Rock.
Searles "8"—Diagram.
Searles "9"—Sample Rock.
Lawson "1"—Diagram.
Lawson "2"—Sample Rock.
Lawson "3"—Sample Rock.
Lawson "4"—Diagram.
Lawson "5"—Diagram.
Lawson "6"—Diagram.
Lawson "7"—Diagram.
Lawson "8"—Sample Rock.
Lawson "9"—Sample Rock.

Appellant also used and referred to, in oral argument, two plats from Monograph Twelve of United States Geologic Survey, showing (1) sections through Printer Boy Hill, and Little Ellen Hill, and (2) sections through Prospect Mountain and Fryer Hill, Leadville, Colorado.

1537 *Respondent's Exhibits.*

A—Model.
B—Map.
C—Map.
D—Map.
E—Map.
F—Map.
G—Map.

H—Map.
I—Patent.
K—Assay Report.
L—Assay Certificate.
M—Answer case West End Co. v. Jim Butler Co. No. 3061.
Wiley "1"—Sample Rock.
Wiley "2"—Sample Rock.
Wiley "3"—Sample Rock.
Wiley "4"—Sample Rock.
Wiley "5"—Diagram.
Wiley "6"—Diagram.
Wiley "7"—Diagram.
Wiley "8"—Sample Rock.
Wiley "9"—Sample Rock.
Chandler "1"—Sample Rock.
Chandler "2"—Diagram.
Hoxsie "1"—Sample Rock.
Winchell "1"—Sample Rock.
Winchell "2"—Sample Rock.
Winchell "3"—Sample Rock.
1538 Finch Cross "1"—Diagram.
Finch Cross "2"—Diagram.
Finch Cross "3"—Sample Rock.
Lawson Cross "1"—Sample Rock.
Lawson Cross "2"—Sample Rock.

In witness whereof, I have hereunto set my name and affixed the Seal of the Court, this 7th day of August, 1916.

[Seal Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk of the Supreme Court of the State of Nevada.

1539 In the Supreme Court of the State of Nevada.

No. —.

JIM BUTLER TONOPAH MINING COMPANY (a Corporation), Appellant,
vs.
WEST END CONSOLIDATED MINING COMPANY (a Corporation), Respondent.

Return to Writ.

UNITED STATES OF AMERICA,
Supreme Court of Nevada, ss:

In obedience to the commands of the within Writ, I herewith transmit to the Supreme Court of the United States a duly certified transcript of the complete record and proceedings in the within entitled case, with all things concerning the same.

In witness whereof, I have hereunto subscribed my name and affixed the Seal of said Supreme Court, in Carson City, Nevada, this 7th day of August, 1916.

[Seal Supreme Court, State of Nevada.] H. R. MIGHELS,
Clerk of the Supreme Court of the State of Nevada.

1540 I hereby certify that all costs of the Jim Butler Tonopah Mining Company, appellant, and of the West End Consolidated Mining Company, respondent, herein, have been fully paid by the respective parties.

[Seal Supreme Court, State of Nevada.]

H. R. MIGHELS,
Clerk of the Supreme Court of Nevada.

1541 In the Supreme Court of the United States, October Term, 1916.

No. 628.

JIM BUTLER TONOPAH MINING COMPANY, Plaintiff in Error,
vs.
WEST END CONSOLIDATED MINING COMPANY, Defendant in Error.

Statement of Error Relied on by Plaintiff in Error and Notice of Parts of Record Necessary for Consideration of Such Points.

To Wm. Dickson, Esq., Messrs. Peck, Bunker & Cole, Downer, H. L. Atkinson, Attorneys for Defendant in Error:

In accordance with paragraph 9 Rule 10 of the Rules of the Supreme Court of the United States, as amended March 20, 1916—Notice is hereby given that upon the argument and hearing of said cause before said Court, Plaintiffs in Error will rely on the following Points:—

I.

The Supreme Court of the State of Nevada erred in holding and deciding that the crest or axis of the anticlinal vein in controversy in this action constituted in law such a top or apex of the vein within the meaning and intent of section 2322 of the Revised Statutes of the United States, as conferred upon the Respondent a right to follow said vein and extract and remove the ore therefrom underneath the surface and within the vertical boundaries of Appellant's patented mining claims, the Eureka and Curtis.

II.

The said Court having found and decided that the vein, the ownership of which is in controversy in this action, commonly
1542 called the West End McNamara Vein, was a single vein underlying the properties of both Appellant and Respondent, that such vein was in the form of an anticline or anticlinal fold, one of the limbs descending into the earth in a Northerly direction, the other in a Southerly direction, the defendant's discovery and discovery shaft in the West End claim being situated on the Northerly dipping limb of said anticlinal vein, the said Court erred in holding and deciding that the Defendant had a right to follow said vein on the downward course of the Southerly dipping limb into and underneath the surface of the Eureka and Curtis patented claims of Appellant.

III.

The said Court erred in holding and deciding that under section 2322 of the Revised Statutes of the United States the words "top or apex" of a vein, as contained in said section does not require that the vein should have a terminal edge within the boundaries of a claim, in order to entitle the owner of the claim to follow the vein on its downward course into lands adjoining, and said Court erred in holding and deciding that the crest or axis of an anticlinal vein constituted the top or apex of a vein within the meaning of said Section 2322 of the Revised Statutes of the United States.

IV.

The said Court having found and decided that the vein the ownership of which is in controversy in this action, commonly called the West End McNamara Vein, was a single vein underlying the properties of both Appellant and Respondent, that such vein was in the form of an anticline or anticlinal fold, one of the limbs of which descended into the earth in a northerly direction, and the other in a southerly direction, and that said vein had no terminal edge within the boundaries of Respondent's West End claim, the said Court erred in holding and deciding that the defendant had a right to follow said vein on its downward courses in opposite direc-
1542½ tions, to-wit, in a Northerly and Southerly direction from the crest or axis of the anticlinal vein.

V.

The Court erred in holding and deciding that the owner of a lode mining claim having therein the tops or apexes of two veins descending into the earth in opposite directions, may follow both veins on their opposite downward courses into and underneath the lands adjoining and the Court further erred in holding and deciding that the same rule should apply, and which the said Court by its holding and decision applied to the single anticlinal West End Vein, having its axis of crest within Respondent's West End claim.

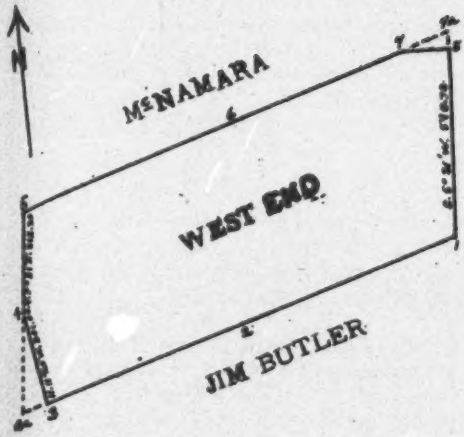
VI.

The said Court erred in holding and deciding that the Respondent was the owner and entitled to the possession of that part of the anticlinal vein commonly known as the West End McNamara Vein, which lies underneath the surface and within the vertical boundaries of Appellant's patented Eureka and Curtis claims.

VII.

The Court in its decision presented a diagram showing the exterior boundaries of the West End claim, which diagram is herewith reproduced.

(Here follows diagram marked p. 1543.)



No 628.

Jim Butler Mineral Mining Co. v. West End C. M. Co. } 1643.

1544 The Court held and decided that the line 1-8 on said diagram and the line 4-5 were the legal end lines of the claim, and that the line 4-3 was a side line. The court erred in holding and deciding that said lines 1-8 and 4-5 were the legal end lines of said claim and also erred in holding and deciding that said line 4-3 was a side line.

VIII.

The Court erred in holding and deciding that under Section 2322 of the Revised Statutes of the United States, end lines need not be parallel throughout, and that if one end line is straight and the other broken, one being parallel to the other for a part of the distance only and then changing its direction, that the true end lines of the claim are the parallel parts of said end boundaries, and the other lines are said lines, and the Court erred in holding and deciding that the Respondent was entitled to follow the vein in controversy on its downward course into and underneath the surface of Appellant's patented Eureka and Curtis claims, between planes drawn through the lines marked 1-8 and 4-5 on the diagram set forth under assignment VII and such planes extended indefinitely in their own direction southerly.

IX.

The said Court erred in holding and deciding that Appellant was not the owner of that portion of the vein in controversy which lies underneath the surface and between the vertical boundaries of the Eureka and Curtis patented claims of Appellant.

Plaintiff in error indicates the following as the parts of said record which are necessary for the consideration of such points:—

All of Volumes I and II of the record, transmitted by the clerk of the Supreme Court of the State of Nevada to the Clerk of the Supreme Court of the United States, and containing a transcript
1545 of the proceedings had, and testimony taken at the trial of the case before the trial court.

Also the following documents and papers appearing in volume III of said record:

1.—Amended Complaint (Document No. 1209).
2.—Answer (Document No. 1191).
3.—Replication (Document No. 1201).
4.—Opinion of Trial Court (Document No. 1137).
5.—Findings of Fact and Conclusions of Law (Certified Copy). Document No. 1164.
6.—Judgment (Document No. 1235).
7.—Judgment Roll (Document No. 1184).
8.—Notice of Appeal from Judgment, etc. No. 1475.

All other documents contained in said volume III, are to be excluded from the printed record.

In addition to the foregoing, there are to be included in the

printed record, all documents filed and proceedings had before the Supreme Court of the State of Nevada from the date of its decision of the above entitled cause and which are contained in the record forwarded by the Clerk of the Supreme Court of the State of Nevada to the Clerk of the Supreme Court of the United States and including the opinion of the Supreme Court of the State of Nevada.

Also all exhibits and illustrative maps, mentioned and referred to in the above enumerated parts of the Record.

CURTIS H. LINDLEY,
HUGH H. BROWN,
Attorneys for Plaintiff in Error.

Dated, August 30th, 1916.

Due service of the within and receipt of copy acknowledged this 31st day of August 1916.

PECK, BUNKER & COLE,
DICKSON, ELLIS, ELLIS & SCHOULDER,
CHENEY, DOWNER, PRICE AND HAWKINS,
H. H. ATKINSON,
Attorneys for Defendant in Error.

1546 [Endorsed:] 628—25458. No. 628 October Term. In the Supreme Court of the United States. Jim Butler Tonopah Mining Company, Plaintiff in error vs. West End Consolidated Mining Company, Defendant in Error. Statement of Errors and Notice Curtis H. Lindley and Hugh H. Brown, Attorneys for Plaintiff in Error.

1547 [Endorsed:] File No. 25458. Supreme Court U. S., October term, 1916. Term No. 628. Jim Butler Tonopah Mining Co., Pl'ff in Error, vs. West End Consolidated Mining Company. Statement of errors to be relied upon and designation by plaintiff in error of parts of record to be printed, and proof of service of same. Filed September 5, 1916.

Endorsed on cover: File No. 25458. Nevada Supreme Court. Term No. 628. Jim Butler Tonopah Mining Company, plaintiff-in-error, vs. West End Consolidated Mining Company. Filed August 21st, 1916. File No. 25458.

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In the Supreme Court

OF THE

UNITED STATES

OCTOBER TERM, 1917

JIM BUTLER TONOPAH MINING COMPANY,
Plaintiff in Error,
vs.
WEST END CONSOLIDATED MINING COMPANY,
Defendant in Error.
} No. 249

BRIEF OF PLAINTIFF IN ERROR.

The cause comes to this court on Writ of Error to the Supreme Court of Nevada from a judgment rendered in favor of Defendant in Error, affirming a similar judgment of the trial court. The parties are here aligned as in the trial and State Supreme Court. For convenience the Plaintiff in Error will be hereinafter referred to as the Jim Butler Company, and the Defendant in Error as the West End Company.

STATEMENT OF THE CASE.

The Jim Butler and West End Companies are mining proprietors owning mining claims contiguous to each other in the Tonopah Mining District, Nye County, Nevada.

The West End Company, in the conduct of its mining operations originating in the West End claim, passed outside of and beyond the vertical plane of the side line common to both companies, entered underneath the surface of the Eureka and other claims belonging to the Jim Butler, and extracted and removed large quantities of ore. Suit was brought by the Jim Butler to recover the value of this ore, for an accounting, and for an injunction inhibiting further trespasses.

Amended Complaint, Transcript Vol. 2, p. 668.

The West End Company admitted the entry and extraction of the ore, pleaded justification, setting up its right to extract the ore from underneath the surface of the Eureka and other claims of the Jim Butler Company, and alleged that in extending its workings underneath the surface of the Jim Butler properties it was following a vein which had its top or apex within the West End claim, in the exercise of the extralateral right conferred by Section 2322 of

MAP

TOO

LARGE

FOR

FILMING

the United States Revised Statutes, and that the ore extracted was a part of the West End vein.

Answer, Transcript Vol. 2, p. 657.

To this answer the Jim Butler Company filed its replication, traversing the facts alleged as matters of defense.

Replication, Transcript Vol. 2, p. 664.

Before proceeding with a statement of the findings and decision of the trial court, the judgment of affirmance by the Supreme Court of Nevada, and the errors assigned, it will expedite the consideration of the cause if we enter into a more detailed presentation of the facts.

At the oral argument maps, models and illustrations will be utilized, and the court will have become informed as to the salient features of the case, the questions of law involved, and the contention of the respective parties. But for convenience of examination and study, we herewith reproduce some of the important maps, exhibits and illustrations.

Inserted herein as Figure 1 is a reproduction on reduced scale of the Jim Butler general plan map Exhibit 1. This map shows the exterior boundaries of mining claims owned by the respective parties, the West End owned by the West End Company, and the Eureka and Curtis owned by the Jim Butler Company. All the properties are patented, and no

dispute arises as to the title. The inquiry is simply as to what was granted to the respective parties by their patents. The map shows the underground workings underneath the surface of both companies, the irregular shaped areas colored representing stopes from which ore has been extracted. The other colored features represent drifts, shafts, winzes, and other mine openings.

The McNamara, joining the West End on the North, belongs to neither party, but as its workings are on the same vein, it became important to be considered in the investigation of vein structure.

All of the underground workings shown on the map as being underneath the surface of the West End are West End workings. A greater part of those underneath the surface of the Eureka are also those of the West End Company, and fix the lines and extent of the trespass complained of in this action.

It will be observed that the end lines of the West End, i. e., the East and West boundaries, are not parallel throughout, the West line being a broken one. The contention made as to the effect of this upon the asserted extralateral right of the West End will be reserved for later statement and consideration.

It is conceded that *prima facie* the Jim Butler is the owner of all the vein lying underneath the surface, and that it devolved upon the West End to show by a preponderance of evidence, as justification for its invasion of Jim Butler territory, that it had

within its West End claim the apex of the vein so situated with respect to its surface boundaries as to confer an extralateral right, which, by the extension of its bounding planes, would embrace the segment of the vein in dispute.

As to vein structure, the Jim Butler contended at the trial that there was no apex of the vein within the territory of either party; that the vein was in form a rolling anticlinal vein or fold with [redacted] dipping limbs, exhibiting in cross section roughly the appearance of a convex segment of a circle, the crest or axis of the fold or anticline traversing the West End claim diagonally in a Northwesterly and Southeasterly direction.

The West End contended that there were in fact two veins formed at two different periods, the later one dipping to the North and the older dipping to the South, and that the so-called crest or axis of the anticline was in fact a line of junction on the strike formed by the intersection of the later with the older vein.

Practically the entire testimony of both sides of the case was directed to the issue thus raised.

The facts as found and adopted by the Supreme Court of Nevada sustained the contention of the Jim Butler Company that the vein was a single vein, anticlinal in form, but both lower courts ruled that the crest or axis of the anticline constituted in law a top or apex, which gave to the West End an extralateral

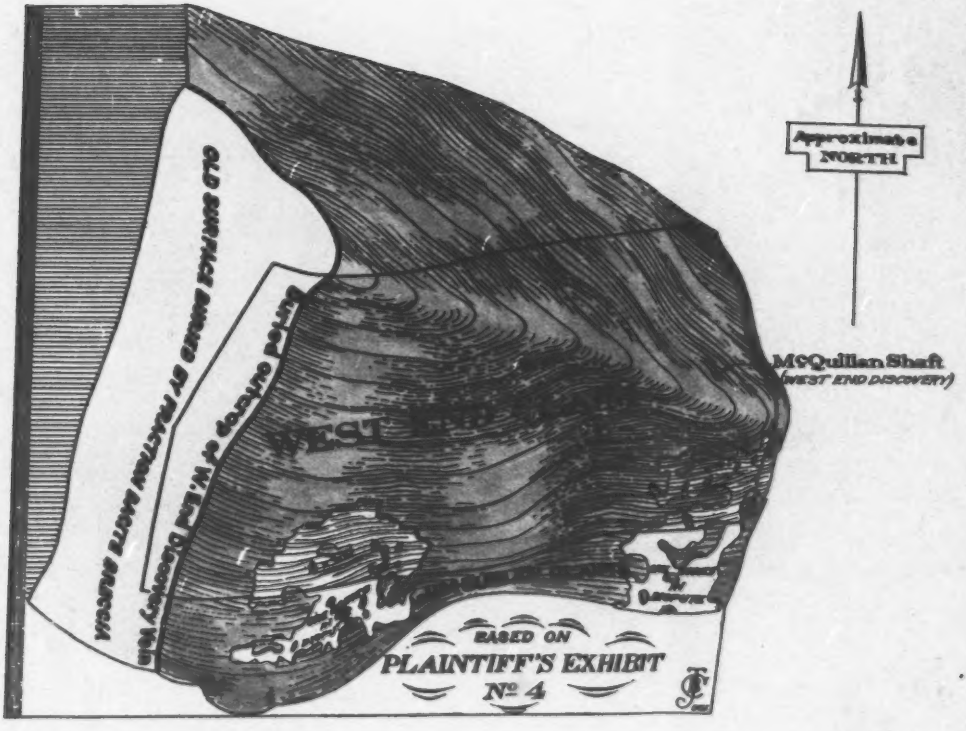
right on both the North and South dipping limbs of the anticline, and that it might exercise this right in two opposite directions.

Plaintiff's Block Model Exhibit No. 4 is herewith reproduced in the form of a stereogram as Figure 2. (Note—The red coloring represents vein and the uncolored portions excavated ore bodies.)

There is no exposure of the vein at or near the surface. It is covered with later flows of volcanic rock known as "Midway Andesite" and "Fraction Dacite Breccia." It can only be reached by sinking through this overburden or "cap" by means of shafts.

The Block Model and the stereogram, Figure 2, show the form of the vein, its situs in the ground, and the axis or crest of the anticline after the capping has been removed. As will appear from an inspection of the various exhibits and especially the skeleton models introduced by each party the vein in question is what is known as a blanket vein and was named and referred to in the early history of Tonopah as the "big flat vein." The two slopes or limbs of this anticlinal vein dip very flatly on their downward course both to the North and to the South, especially in the Eastern portion of the West End claim, where the dip is only 17° measured from the horizontal. Transcript Vol. II, pp. 650-651.

The discovery on the West End claim was by means of the McQuillan shaft, at a point so indicated on the surface map, Figure 1, heretofore inserted herein,


Approximate NORTH
McQuillan Shaft
(WEST END DISCOVERY)
BASED ON
PLAINTIFF'S EXHIBIT
No. 4

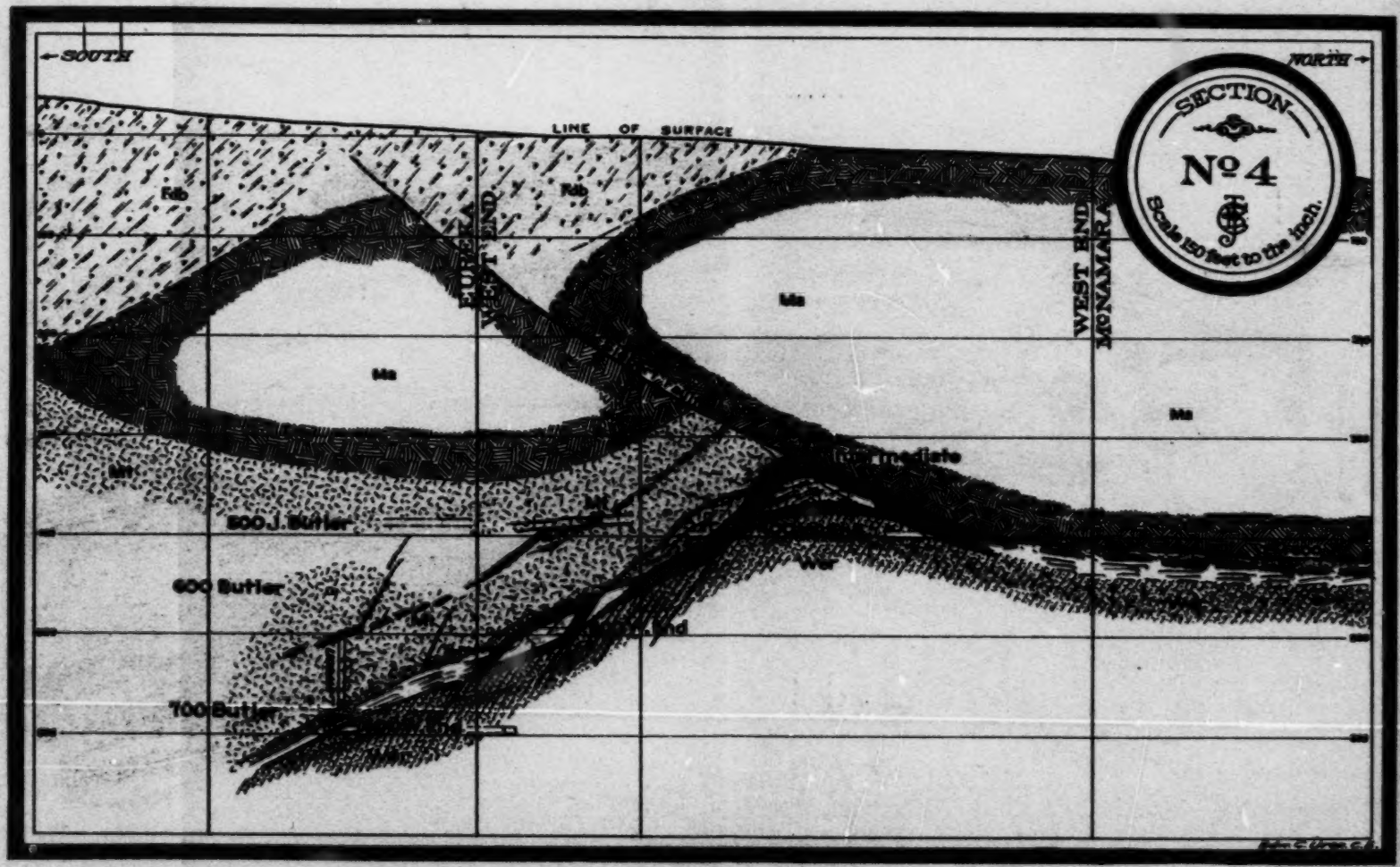

SOUTH
NORTH
SECTION
Nº 4
Scale 150 feet to the inch.
LINE OF SURFACE
EUREKA
WEST END
WEST END
McNAMARA
Rib
Rib
Ma
Ma
Ma
Intermediate
500 J. Butler
600 Butler
700 Butler

FIGURE 5

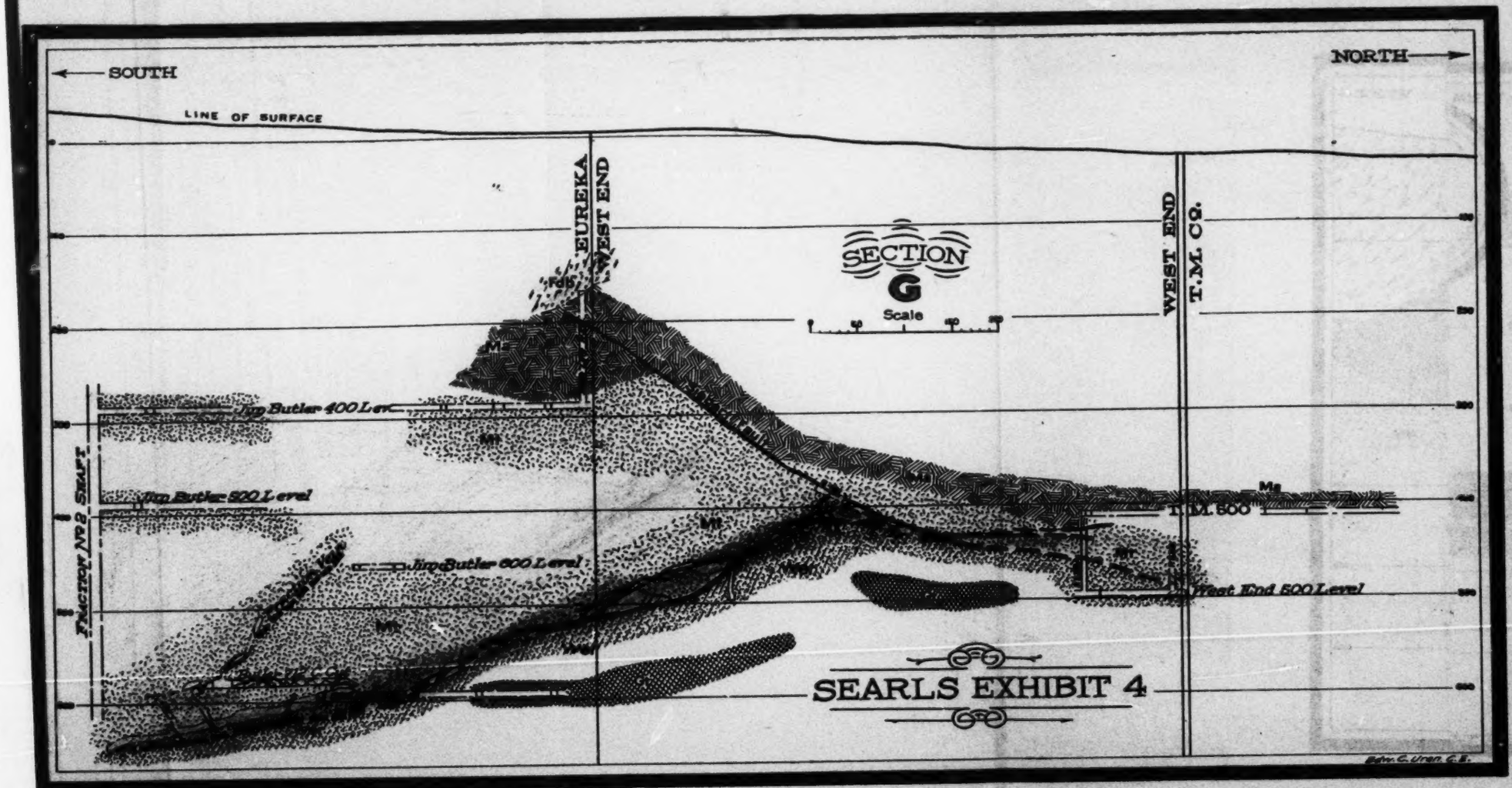

SOUTH
NORTH
LINE OF SURFACE
EUREKA
WEST END
WEST END
T.M. CO.
SECTION
G
Scale
Fds
Mr
Ms
Jim Butler 400 Level
Jim Butler 500 Level
Jim Butler 600 Level
T.M. 500
West End 500 Level
Fraction No 2 Shaft
SEARLS EXHIBIT 4

FIGURE 4

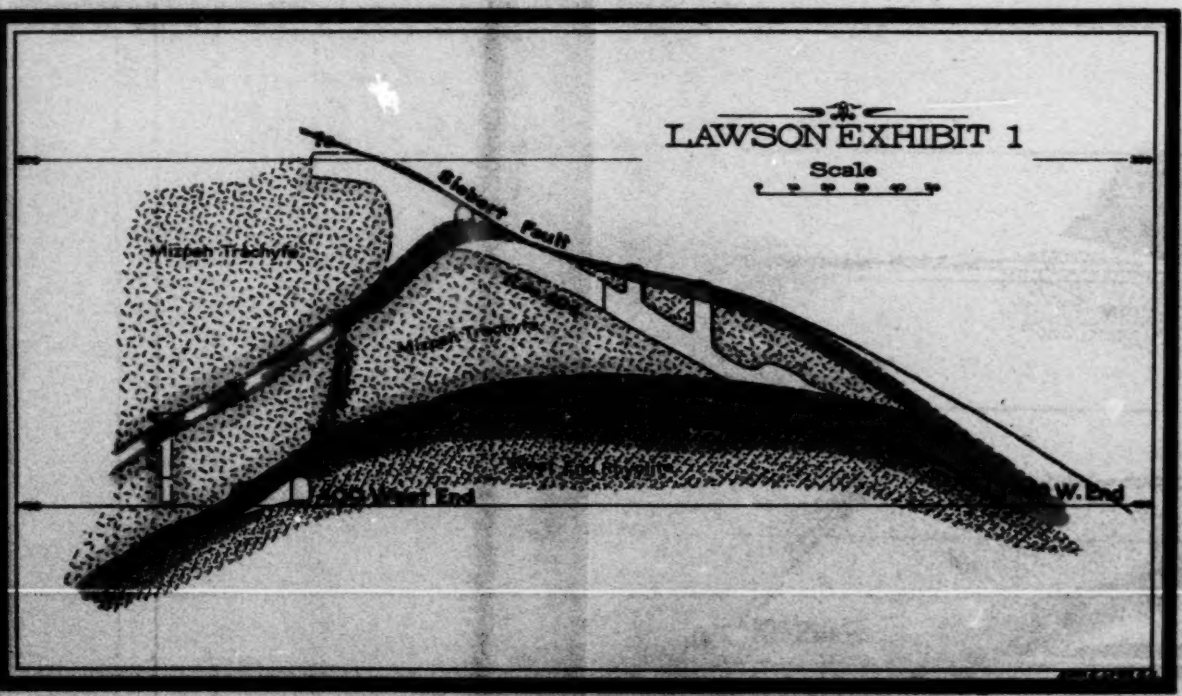


FIGURE 3

and on the Stereogram, Figure 2. This shaft at considerable depth encountered the north dipping limb of the vein. The spaces marked "ore bodies in dispute" on Figure 2 represent the trespass complained of underneath the surface of the Jim Butler claims, and are on the opposite or South dipping limb of the anticline.

An inspection of the Glass Model introduced by the Jim Butler Company, identified as Plaintiff's Exhibit 3, will also exhibit the form of the vein. We also herewith reproduce on reduced scale three cross sections admitted in evidence and identified as Section No. 4, Lawson's Exhibit 1, and Section G, Searls' Exhibit 4, marked respectively Figures 3, 4, 5, which exhibit the vein structure in these sections.

Opposite page 690, Vol. II of the Transcript, is a cross section said by the Supreme Court of Nevada "to represent a cross section of the vein where the "two limbs have been shown by development work "to be united at the crest of the anticlinal fold."

This cross section was taken at a point where the vein had been scored by the "Siebert Fault," a later feature. The Lawson Exhibit No. 1, heretofore reproduced as Figure 4, is a more detailed showing of the conditions existing at this point. This condition has no longitudinal extensions in either direction, and there is nothing to be inferred from the appearance of the illustration used by the court to detract

from its finding that the vein is a single vein and exists in the ground in the form of an anticline.

While thus determining the form of the vein, as heretofore noted, the courts below both held that the axis or crest of an anticlinal vein constituted in law the top or apex of the vein, and that the West End invasion of Jim Butler Territory was lawful. It was also determined that the broken character of the West end line boundary of the West End claim did not impair the West End extralateral right.

The Supreme Court of Nevada in its decision of the case thus stated the questions involved on the appeal:

> "The case presents two main questions of law, to wit:
>
> *"First:* Whether the fact that the Westerly end line of the surface area of the West End claim as patented, being not straight, but a broken line, in and of itself deprives the owner of that claim of extralateral rights upon any vein apexing therein.
>
> *"Second:* Whether, within the meaning of the Act of Congress, the crest or crown of a vein which is found in the form of a single anticline may be regarded as the top or apex of the vein and extralateral rights exist upon such vein in opposite directions."
>
> Opinion, Trans. Vol. II, p. 691.

ASSIGNMENTS OF ERROR.

The Assignments of Error are IX in number. Assignments I, II, III and IV assign as error the holding and decision of the court below, that the crest or axis of an anticlinal vein constituted in law such a top or apex of the vein within the meaning and intent of Section 2322 of the Revised Statutes of the United States as conferred upon the West End Company the right to follow the vein into Jim Butler territory. These assignments differ only as to the form in which the error is pointed out.

Assignment V attacks a ruling of the court made in the course of its opinion that if a mining claimant had the tops or apices of two veins within his claim, dipping in opposite directions, he would have an extralateral right on both veins.

This question was injected into the case by the court by way of illustration in support of its opinion on the main question and also by reason of the fact that there was before the court the contention urged by the West End that there were two veins instead of a single vein. We comment on this more fully later on. Believing the position taken by the court to be unsound in law, although the ruling may not strictly be subject to assignment as error, we specified it as error. It will and appropriately may be discussed in the course of the argument.

Assignments VII and VIII attack the decision of

the court on the effect of the non-parallelism of the West End end lines.

Assignments VI and IX are general and precautionary in their nature. If our contention as to the other assignments, or either of them, is sustained by the court, the judgment of the courts below will necessarily be reversed without resorting to a discussion of the general assignments VI and IX.

We will discuss the questions raised by these assignments in the order named.

ARGUMENT.

We take up for discussion the assignment of errors in the order in which they are above stated, and divide our discussion into three branches.

I. The error committed by the court in determining that the axis or crest of the anticlinal vein constituted in law such a top or apex as will confer upon the owner of a lode mining claim an extralateral right.

II. The error committed by the court in determining that when a mining claim contained the tops or apices of two veins dipping in opposite directions, the owner could pursue both veins in their opposite downward courses into lands adjoining.

III. The error committed by the court in determining that the West End Company could

exercise an extralateral right notwithstanding the non-parallelism of the end lines of its claim.

These are the only questions which require consideration by this court.

I.

THE CREST OR AXIS OF AN ANTICLINAL VEIN IS NOT THE TOP OR APEX WITHIN THE MEANING OF SECTION 2322 OF THE REVISED STATUTES. EXTRALATERAL RIGHTS MAY ONLY BE EXERCISED BY THE PROPRIETOR OF VEIN WHICH HAS THE ESSENTIAL ELEMENTS OF A TERMINAL EDGE WITHIN THE CLAIM AND A DOWNWARD COURSE THEREFROM.

As pointed out in the opinion of the Supreme Court of Nevada, the answer to the question

> "whether within the meaning of the Act of Congress the crest or crown of a vein which is found in the form of a single anticline may be regarded as the top or apex of the vein, and extralateral rights exist upon such vein in opposite directions

must be found in an interpretation of that portion of the Mining Act which contains the grant of extralateral rights, which reads as follows:

> " 'The locator of all mining locations shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth, the top or apex of

which lies inside of such surface lines extended downward vertically, although such veins, lodes, or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued in their own direction that such planes will intersect such veins or ledges. And nothing in this section shall authorize the locator or possessor of a vein or lode which extends in its downward course beyond the vertical lines of his claim to enter upon the surface of a claim owned or possessed by another.' "

Section 2322, *U. S. Rev. Stats.*
Transcript Vol. II, p. 691.

The definition of the term "apex" as employed in the mining statute involves the elements of terminal edge of a vein and downward course extending therefrom.

This was the conception of the pioneer miners who originated the rules and regulations governing their mining rights, and which later were crystallized and codified in the Mining Acts of 1866 and 1872. They conceived of a vein as a sheet of mineralized material dipping into the ground at an inclination from the horizontal. The edge of this mineralized sheet as it came to the surface and terminated in an outcrop or the termination of this edge up against overburden or other material mantling or capping the surface,

constituted the apex of the vein. It was, in other words, the upper terminal edge of the vein which they located and measured off into the varying lengths prescribed by their local customs.

This conception has persisted throughout the Congressional legislation on this subject which followed, as is evident from the expressions of all the authorities which have attempted to interpret this legislation.

> "Now, it is a part of the statute law of the United States that these locations shall be upon the top and apex of the vein. The law goes upon the hypothesis that all veins are more or less vertical in the earth. They come up something in this manner: if we suppose this sheet of paper represents the vein, that they extend in some position vertically, or somewhat so, to the surface of the earth, and that the end or top of the vein comes up towards or near the surface, and the miner in searching for it will make his location in reference to the end or top which comes up toward the surface." Judge Hallett in *Iron Silver Mining Co.* v. *Murphy,* 3 Fed., 368, 371.

This is also the view expressed by this court in the latest decision involving extralateral rights which it has handed down:

> "An apex is, on cited authority, defined to be 'all that portion of a terminal edge of a vein from which the vein has extension downward in the direction of the dip.' And it is further said that the definition has been approved in Lindley on Mines, because as therein expressed it 'involves

the elements of terminal edge, and downward course therefrom.' We may accept the definition. In its application, however, it immediately encounters a question of fact—the locality of the terminal edge; and in this case the State courts did not find it to be where plaintiff asserted it to be.

"But counsel make much of—indeed, appear to give absolute effect to—the other elements of the definition, that is, 'extension downward' or 'downward course' from the terminal edge. But this element again has no significance whatever independently of the 'terminal edge' of the vein found, as we have said, not to be where plaintiff contended it to be. Plaintiff's contention is that the terminal edge extends 200 feet along the Osborne fault and from thence there is a pronounced downward course to the southerly boundary of the Stewart Fraction claim, and that therefore *the two elements essential to an apex* in the accepted definition exist, namely, *'terminal edge and downward course'* within 'vertical planes parallel with the vertical planes of the end lines of the claim extended downward.'" [Note: Italics in this brief are ours.]

Stewart Mining Company v. *Ontario Mining Company*, 237 U. S., 350, 360.

See, also,

Alameda Mining Company v. *Success Mining Company* (Idaho), 161 Pac., 862, 865,

which quotes with approval the foregoing definition adopted by this court.

According to the definition just given, the horizontal sheet "a" on figure 6 here inserted, has no apex, for one of the prime elements, "downward course," is lacking. Neither has the anticlinal fold

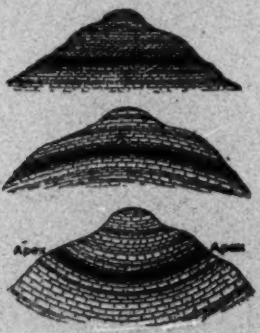


FIGURE 6

"b" any apex, for there is lacking the essential element of "terminal edge" from which the vein can be followed on a "downward course." From either of the terminal edges indicated on the diagram it is only possible to follow upward on the vein. The synclinal fold "c" has two apices, for the vein can be followed on its downward course from either terminal edge there illustrated to an equitable center beyond which there is no further extension downward.

For the purposes of further illustration, we present in figure 7 a cross section which represents an idealized situation found in the famous Leadville District of Colorado. The stratum d d represents the underlying white porphyry; b b, the vein material; c c, the

underlying blue limestone. The line A x and B B represent the crests of the ridges formed by the anticlinal folds.

If the overlying porphyry on the crests of the anticlinal folds were removed, leaving the vein material

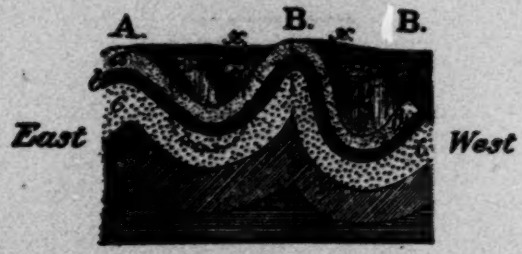
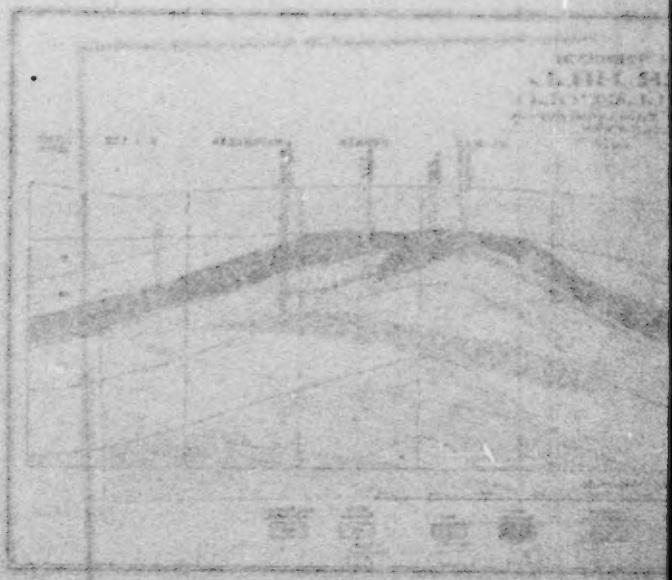
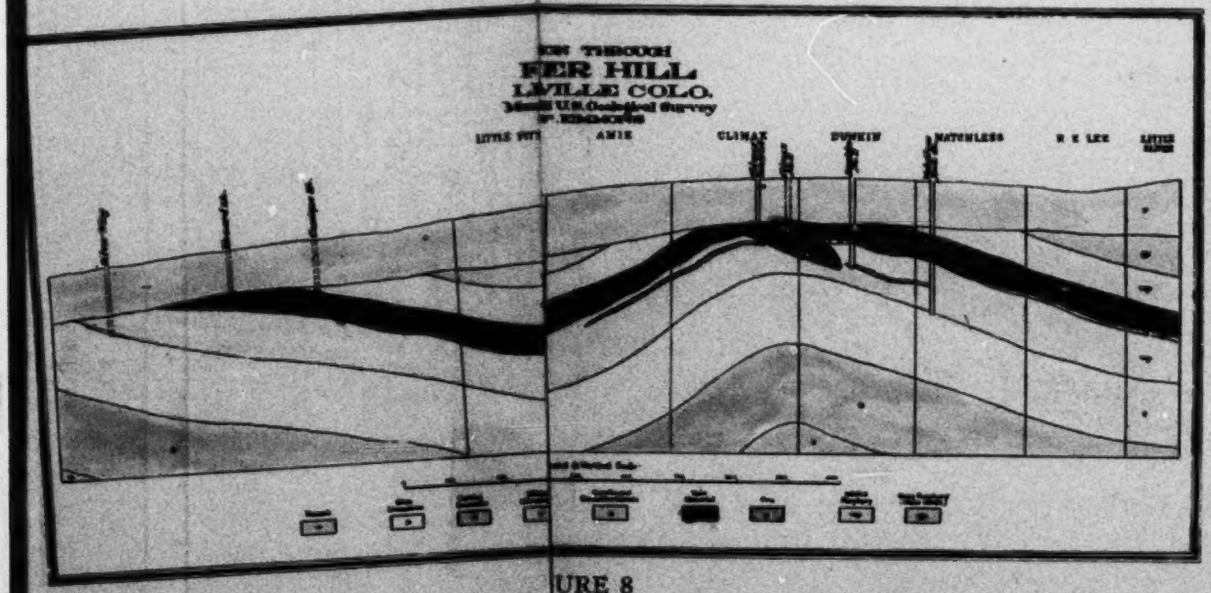


FIGURE 7

there exposed, and assuming that in this uncovered position the deposit would still fall within the definition of a vein or lode, neither A x nor B B would be apices. They are tops, or crests, of the folds, but not apices of the deposit. The exposed surface would be part of the top of the deposit, contradistinguished from the bottom lying on the limestone.

With the vein in position, as shown on this figure, it might be said that its highest part, or the part approaching nearest to the surface (assuming that there was no surface exposure elsewhere), would be along the crest of the fold. But this would not be the top or apex of the vein. It would be the top, or apex, of a fold in the vein. If this line were the apex of the vein, a location with side lines along the crest would





URE 8

give the locator the right to follow the vein in both directions, east and west, "up hill and down dale," indefinitely, so far as the vein preserved its continuity and identity.

The only exposures of the vein in position as shown on the figure that can possibly answer to the definitions given by the courts are those indicated by the abrupt terminations at the east and west.

While the conditions in Leadville are not in all respects similar to those at Tonopah, since the Leadville veins in many instances dipped at a flatter angle, the principle involved is in no wise altered and if the mineral deposits in Leadville had no apices because they had no terminal edges along the crests of these anticlinal rolls then it is equally true that for the same fundamental reason they do not constitute apices when such anticlinal rolls are found to occur in Tonopah. Fortuitous geographic position does not alter the law applicable to such deposits, nor does the change of a few degrees in dip affect the result when the underlying principle remains the same.

The following reproduction, inserted here as Figure 8, of a cross section appearing in Emmons' remarkable monograph on the Leadville District (Monograph XII, U. S. Geological Survey), is peculiarly apposite.

By comparison with Figures 3, 4 and 5, inserted hereinbefore, which represent in cross section the actual slope or inclination of the two opposite dipping

limbs or segments of the anticlinal vein in the eastern position of the West End claim, it will be seen that the angle of inclination of the opposite slopes of the anticline appearing in the Leadville situation, and also in the Tonopah situation, are practically identical. Bearing in mind what the courts have said concerning the denial of an extralateral right in Leadville, wherever there is an absence of a terminal edge or interruption in a vein, and only an upward swell or roll, so that "in its ascent towards the surface . . . it turns over and pursues its course downwards as a part of the same vein," it is difficult to perceive why the same principle should not apply to a vein in Tonopah possessing substantially similar physical attributes.

The element of terminal edge is an essential part of the legal definition of the term "apex," in the opinion of practically all of the text writers on the subject.

> "Conceiving a vein or lode to be an intrusive sheet of mineralized matter of varying thickness found in the mass of the mountain, the apex of a vein is thus seen to be that edge of the sheet which shows on the surface of the location, or is nearest to the surface. It is not a point, though apex naturally suggests point. It is not a line, though it has the full extension of the upper edge of the lode. It is the whole surface of the upper edge of the vein, with all the width and length which that edge has."
>
> *Costigan on Mining Law*, 139-140.

"The mere fact of proximity to the surface is

insufficient to establish the apex without the evidence that it is the upper edge or end of the vein."

Barringer and Adams, The Law of Mines and Mining, p. 442.

"In the mathematical sense, an apex means the highest point; but it is not used in this sense in the statute. As used therein it means the edge or termination of the vein which comes to the surface of the earth, forming an outcrop, or which comes nearest to the surface of the earth when the vein terminates before it reaches the surface. . . . It may not be the highest point of a vein, as such highest point may be found in a swell of the vein."

Shamel—Mining, Mineral & Geological Law, 193, 197.

"The top or apex of a vein or lode is the highest point thereof and may be at the surface of the ground or at any point below the surface; the end or edge of a vein nearest the surface."

Mines & Minerals, 27 Cyc., 537.

"The end or edge of a vein nearest the surface."

Raymond—Glossary of Mining and Metallurgical Terms. Trans. Am. Inst. M. E., Vol. IX, p. 102.

Counsel for the West End Company in the court below quoted from the Century Dictionary defining an apex to be the "top of an anticlinal fold," but this definition is coupled with the statement that the term

is there employed in a geological sense and does not purport to be a definition of its legal significance. The mining acts "were not drawn by geologists or for geologists."

Eureka Cons. M. Co. v. *Richmond M. Co.*, 4 Saw., 302, 311, Fed. Cas. No. 4548.

The courts have had occasion to discuss with elaborate detail the various elements that enter into the legal definition of the term "apex." Probably the most interesting and instructive of all the adjudicated cases is the pioneer case of *Duggan* v. *Davey*, 4 Dak., 110, 26 N. W., 887. The decision of the Supreme Court of Dakota follows, in the main, the opinion given by the trial court. It is a lucid and masterly presentation of the law, and several expressions of the court are well worth quoting in support of our contention that a terminal end or edge of a vein is an essential element of apex definition.

> "The definition of the top or apex of a vein usually given is 'the end or edge of a vein nearest the surface' (p. 900); . . . Justice Goddard, a jurist of experience in mining law, in his charge to the jury in the case of *Iron Silver* v. *Louisville*, defines 'top' or 'apex' as the highest or terminal point of a vein 'where it approaches nearest the surface of the earth and where it is broken on its edge, so as to appear to be the beginning or end of the vein.' . . . The word 'apex' ordinarily designates a point, and so considered the apex of a vein is the summit; the highest point in the vein in the ascent along the line of its dip

or downward course, and beyond which the vein extends no further, so that it is the end, or reversely, the beginning, of the vein. The word 'top,' which includes 'apex,' may also include a succession of points,—that is, a line,—so that by the 'top' of a vein would be meant the line connecting a succession of such highest points or apices, thus forming an edge" (p. 901).

The case of *Illinois Silver M. Co.* v. *Raff* (New Mexico), 34 Pac. Rep., 544, is a case possessing many points of similarity to the case at bar since the plaintiffs in error (defendants below) had invaded adjoining territory and attempted to justify by asserting the existence of the apex of the vein in their own territory which they had followed down beyond their side lines. The following excerpts from the decision will explain the physical facts and the court's holding:

"The plaintiffs in error are the owners of a patented claim, the Illinois, situated in the Kingston district, in Sierra County. The defendants own the Calamity claim, lying east of, and adjoining, the Illinois. Plaintiffs, working their ground, passed out under the east side lines of the Illinois, and into the ground of the Calamity, extracting ore in large quantities therefrom. Defendants brought suit in ejectment. . . . The defendants contend that, . . . the so-called apex is a point upon the lime mineral lode or zone whence the shale has been eroded upon the throwing up, in a rolling form of said lime zone . . . The zone or mass may follow the undulations of a broken country down into the valley, and rising over the divides, cutting through, covered by, or overlapping other formations; but until

it is broken, and the edge exposed, or some edge or end as a beginning point found, from which it can be followed down at some angle below the horizontal, there is no apex from which it can be followed beyond the side lines of a claim located upon it" (p. 546).

The peculiarities of the Leadville ore deposits gave rise to an epidemic of mining litigation. In many of these cases the question became vital as to whether an anticlinal roll or undulation in the vein constituted an apex and received critical consideration. In one of these cases, Justice Miller, at that time a member of this court and one of its ablest mining jurists, in the performance of his duties on the circuit, charged a jury, as follows:

"The next point is, that it is denied that there is a top or apex to this ledge or vein, and that if there is such a one it is not within the side lines of the plaintiff's patent. Perhaps upon that point the defendants have mainly rested their case. I think that you will agree with me, as all the counsel agree and all the witnesses agree substantially, conceding that there is a vein, that the top or apex of a vein, within the meaning of the act of Congress, is the highest point of that vein where it approaches nearest to the surface of the earth, *and where it is broken on its edge so as to appear to be the beginning or end of the vein.* [Note: Italics in this brief are ours.] The word 'outcrop' has been used in connection with it, and in the true definition of the word 'outcrop' as it concerns a vein, is probably an essential part of the definition of its apex or top; but that does not mean the strict use of the word 'outcrop.' That

would not, perhaps, imply the presentation of the mineral to the naked eye, on the surface of the earth, but it means that it comes so near to the surface of the earth that it is found easily by digging for it, or it is the point at which the vein is nearest to the surface of the earth; it means the nearest point at which it is found toward the surface of the earth. And where it ceases to continue in the direction of the surface, is the top or apex of that vein. It is said in this case that the point claimed to be the top or apex is not such, because at the points where the plaintiff shows or attempts to prove an interruption of that vein, in its ascent towards the surface, and what he calls the beginning of it, the defendants say that is only a wave or roll of the general shoot of the metal, and that from that point it turns over and pursues its course downwards as a part of the same vein, in a westerly or southwesterly direction. It is proper I should say to you, if the defendants' hypothesis be true, *if that point which the plaintiff calls the 'highest point,' the 'apex,' is merely a swell in the mineral matter, and that it turns over and goes on down in a declination to the west, that it is not a true apex within the statute.* It does not mean merely the highest point in a continuous succession of rolls or waves in the elevation and depression of the mineral nearly horizontal."

Stevens v. *Williams,* Fed. Cas. No. 13,413, p. 40, 43.

The case reported immediately following this case (No. 13,414) and having the same title indicates that these ore bodies dipped at an angle of 13° to 15° from the plane of the horizon.

Another learned mining jurist, Judge Hallett, in

a charge to a jury in a case in the Federal District Court used the following language:

> "And first we may say, by way of definition, that the top or apex is the *end or edge or terminal point* of the lode nearest the surface of the earth. It is not required that it shall be on or near or within any given distance of the surface. If found at any depth, and the locator can define on the surface the area which will enclose it, the lode may be held by such location. Now, whether there is such an *end, edge or terminal point* of the vein or lode at any depth in plaintiff's ground, is the question to be determined by the evidence.
>
> . . . . . .
>
> "We come next to the position assumed by the defendants, to the effect that the lode is continuous from side to side of plaintiffs' location, and that *the part which plaintiffs claim to be a top or apex is only an upward swell, ridge, or high point in the vein from which it descends in both directions.*
>
> . . . . . .
>
> "And if it is continuous, as suggested—that is to say, *if coming in at one side it passes unbroken to the other—the plaintiff cannot follow it beyond the lines of its location.* . . . And no location can be made on the middle part of a lode, or otherwise than at the top or apex, which will enable the locator to go beyond his line."
>
> *Iron Silver Mining Co.* v. *Murphy*, 3 Fed., 368, 375-76.

The vein here involved is of the same character as the veins in these cases just quoted from. What defendant in error claims as an apex of the vein in the West End claim is merely an "upward swell or ridge . . . from which it descends in both di-

rections" and for portions of its extent at least as found by the trial court is "continuous . . . coming in at one side it passes out unbroken to the other." It comes in from the North, "turns over and goes down in a declination to the" South. What matters it if in some of the cases cited there were other undulations or rolls? That does not alter any principle involved. Where shall the line be drawn as to the size or number of the undulations necessary to overcome the principle? The courts in each case have laid down the principle—not that summits of rolls shall not be considered apices merely because they are rolls—*but because they are continuous vein matter —unbroken—without terminal edges.* Each case is to be determined by the facts of the case as applied to the claim involved and if a vein comes up into a claim and rolls over and goes down on an opposite downward course through the other side of the claim, as was the case in the authorities cited, it matters not that there may be other rolls or ridges far removed from the claim. The rolls involved in those cases were not local and insignificant. The fact that they follow the undulations of "hills and valleys" is sufficient to establish the contrary. The courts are not going to perform the impossible and look into the undeveloped ground to prophesy whether there are other undulations or not on beyond. There may be in the case of the vein in question,—and if such other undulations be found, shall this destroy the extralateral right claimed by defendant in error—and does

the mere fact of the existence of successive anticlinal rolls alter the principle?

If there is no injustice in denying a locator covering the crest of one fold of a series the right to follow the vein as far as it continues on its downward course before turning up again, there is certainly no difference in real principle merely because a single anticlinal roll exists which may later prove to be only one of a series.

When the locus and existence of an apex is ascertained, and properly located with respect to the boundaries of the claim, then the title to the extralateral segment of the vein having such apex is forever quieted as between the parties to litigation, involving the existence of an apex. This is the very essence and purpose of the apex law. All sound apex decisions must harmonize with this concept. But if the doctrine contended for by opposing counsel is to receive the approval of the court, then we may be confronted with the situation illustrated by Figure 9.

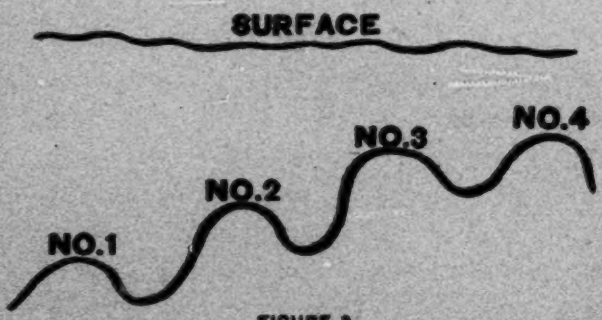


FIGURE 9

This section presents a series of crests of anticlinal rolls in an undulating vein discovered to exist in the order enumerated. If opposing counsels' contention be sound, a ruling in favor of Apex No. 1, instead of being final, and forever quieting the title, would either give way to a later discovery of Apex No. 2, or the extralateral right might be defeated altogether. And subsequently, both determinations might have to give way in favor of a determination in favor of Apex No. 3. And all three might again have to yield in favor of a determination in favor of Apex No. 4. This illustrates the inconsistencies which may arise if the doctrine of defendant in error be accepted.

Counsel for the West End Company contended in the courts below and we assume that they will make the same contention before this court that the mining laws of Congress were intended to be liberal to the prospector and discoverer. To all of this we subscribe as a generality. On the other hand, it is also manifest that a limitation must of necessity exist as to the extent of the grant to the original discoverer on the discovered vein, otherwise the discoverer would secure the entire vein, no matter what its magnitude and persistence, to the exclusion of all other locators. The ancient mining laws, as a special reward to the original discoverer, granted him a double claim, and this liberality was carried forward into our mining laws when the miner and prospector in the early days of mining in the West fashioned his own laws, based on

custom and observance, and this double grant was still later recognized in the provisions of the Act of 1866, which crystallized what has gone before (§ 4 of Act of 1866). But the framers of the Act of 1872 did not see fit to perpetuate this additional grant to the discoverer, and placed him on the same footing with all other locators as regards the size of the claim that he might locate. While the Act of 1872 is intended to be liberal to the discoverer, it does not place him in a distinct class, but he is governed by the same provisions which govern all locators.

The Act of 1872 prescribes that certain formalities shall be complied with "as conditions upon which extra-lateral rights may be acquired" and "a party must bring himself within those conditions or else be content with simply the mineral beneath the surface of the territory." This is the language of Mr. Justice Brewer in the Del Monte case (171 U. S., 55, 56).

The mere fact that the West End Company did what most mine operators in Tonopah are compelled to do, viz: to sink a shaft through a considerable depth of cap rock before encountering the vein, only entitles that company to the rights that naturally and logically result from the physical situation disclosed. The fact that they encountered an anticlinal vein without any legal apex leaves them in the same position that they would have found themselves if the vein had been a flat horizontal sheet, and they are only entitled to the ore embraced within the vertical boundaries of

their claim. That this was no inconsiderable amount is evidenced by the extensive stoping found beneath the West End surface.

II.

SECTION 2322 OF THE REVISED STATUTES DOES NOT CONTEMPLATE THE EXERCISE OF AN EXTRALATERAL RIGHT IN TWO OPPOSITE DIRECTIONS.

While a discussion of this proposition will be rendered unnecessary in the event that this court determines that the crest of an anticlinal roll is not a legal apex, yet this question assumed considerable importance in the courts below, because the main contention of the West End Company in the trial court was that the opposite dipping limbs or slopes of the anticlinal roll constituted two distinct and separate veins. The trial court in its opinion said:

> "The all-important contention of fact is whether the body of quartz, ore, etc., or the bodies of quartz, ore, etc., in the controversy constitute one vein or two. The evidence easily preponderates that it, or they, form but one vein . . ." (Transcript Vol. II, p. 633).

Though this discussion may prove unnecessary as indicated, yet it is not without its value as an analogue.

The West End discovery is admitted to have been made in the McQuillan shaft on the North dipping slope or side of the vein (Transcript, Vol. I., p. 179; Vol. II, p. 651), and consequently, the West End

extralateral right, if it have any such right, extends to the North. But here we are confronted with the fact that the slope or side of the vein embracing the ore bodies in dispute dips Southerly and in the opposite direction from the North dipping slope or segment of the vein on which the discovery was made. The question is squarely raised as to whether two extralateral rights can be predicated on the same location and exercised on the same vein or on different veins in opposite directions.

The vital part of the grant which bears on this question is contained in the language of §2322 of the Revised Statutes which confines the extralateral segments of the vein

> "to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued *in their own direction* that such planes will intersect such exterior parts of such veins or ledges."

This language, we respectfully submit, only admits of the interpretation that such planes shall be extended in one direction, and that would be in the direction of the dip of the vein on which the discovery was made. If the statute bore the interpretation claimed for it by defendant, the language would have read *"in both directions."* Since it did not, the inference is clear that bifurcated, or double barreled extralateral rights were not contemplated.

Opposing counsel may seek to obtain some comfort

from that portion of the section which states that the locator of all mining locations may possess all veins throughout their entire depth, etc.,

> "although such veins, lodes or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical *side lines* of such surface locations."

They may urge that the use of the plural "side lines" gives rise to the inference that the grant of extralateral rights through two opposite side lines of the same claim was intended. It is very clear, however, that this portion of the section is dealing with "mining locations" in the plural and it would have been entirely improper from a grammatical standpoint to have made use of the term "side line" in the singular under any construction that might be placed on the statute.

Again, at the end of the portion of the statute above quoted, the following language is employed, that the locator shall not be permitted to follow his "vein or lode which extends on its downward course beyond the vertical lines of his claim" in such a manner as to enter upon the surface of other claims. Here again the plural "lines" is used and appellee will doubtless claim that this also is an express sanction for a double-barreled extralateral right. However, it will be noted that the plural is confined to the "lines" of the claim, and that the term "*side* lines" is not employed, and since it is not used, the presumption would be that

it was not used advisedly. The framers of the statute unquestionably wished the prohibition of the statute to be all-embracing, so as to prevent a claimant from entering upon the surface of another claim, whether he followed his vein downward through a side line or an end line, and it will be borne in mind that the courts have held that a claimant may follow his vein on its downward course through an end line when the apex of the vein crosses both parallel side lines of a claim.

King v. *Amy D. Silversmith M. Co.*, 152 U. S., 222, 228;
Bunker Hill-Last Chance Cases, 131 Fed., 579; 591.

A side boundary of a location may also be broken and composed of more than one line—it may consist of a series of straight lines and under such circumstances the use of the term "lines" would be highly appropriate.

It should also be noted in this connection that the word "claim" is used and not the word "location." Since the word "locations" was used in the immediately preceding portion of the statute, we must again assume that the word "claim" was used advisedly. While ordinarily, the term "claim" is synonymous

with "location," and they are frequently used interchangeably,

> *Del Monte M. Co.* v. *Last Chance M. Co.*, 171 U. S., 55, 74,

the term "claim" may embrace more than one location, and frequently a consolidation of mining locations held and worked under one ownership is held to constitute and be properly designated as a "claim."

That Section 2322, Rev. St. U. S., does not refer exclusively to the extralateral rights pertaining to a single location, and that the idea of extralateral rights arising out of a number of consolidated locations was within the contemplation of Congress when said statute was adopted, see

> *Carson City, etc. M. Co.* v. *North Star M. Co.*, 83 Fed., 658, 662-3.

See also:

> *St. Louis Smelting Co.* v. *Kemp*, 104 U. S., 636, 648;
> *Idaho M. Co.* v. *Davis*, 123 Fed., 396, 399.

Under this view of the case a "claim" as distinguished from a location may be composed of a group of many locations having as many distinct side lines, and the use of the plural word "lines" in the statute was undoubtedly employed to cover this very contingency.

In addition to the foregoing, which negatives any idea that a double extralateral grant can be justified by the language of the statute, we have positive evidence found in the statute itself that no such grant was intended. It will be observed that the statute refers to a "vein or lode which extends in its downward course beyond the vertical lines of his claim." By no possible construction can this be interpreted to mean the following of a vein on more than one downward course in one direction, for if two distinct downward courses on the same vein in opposite directions had been contemplated the statute would have been so worded.

If we consider the evolutionary history of the existing mining laws, we also find ample justification for our position that the law never contemplated that an extralateral right should be granted in two opposite directions.

Prior to the act of 1872, and under the local rules and customs the miner was entitled to but one vein. While end lines were not specifically mentioned in the statute of 1866, they were implied.

Eureka case, 4 Saw., 302, 323;
8 Federal cases, No. 4548, p. 827.

The right to follow the one vein was in the direction of its downward course. This established planes beyond which the miner could not go.

Under the act of 1866, the lode was the principal thing and the surface was in reality an incident.

Johnson v. *Parks*, 10 Cal., 447, 449;
Patterson v. *Hitchcock*, 3 Colo., 533, 544;
Walrath v. *Champion M. Co.*, 63 Fed., 553, 556.

Where the claim was included within a defined surface, as was usually the case, this surface could not be invaded for the purpose of searching for other lodes.

Atkins v. *Hendree*, 1 Idaho, 95, 99.

After patent which conveyed but the one lode—the patentee would acquire title to all subsequently discovered veins to the extent that they might be found within the vertical boundaries of his claim. This is the rule applied to placers in cases of lodes or veins discovered subsequent to the application for patent. While the law did not contemplate that any lodes existed, yet where they were unknown at the time of the application for patent, they passed by operations of law to the placer patentee to the extent they might be found within the vertical placer boundaries.

Under the Act of 1872, the vein is still the principal thing, in that it is for the sake of the vein that the location is made.

St. Louis M. Co. v. *Montana M. Co.*, 194 U. S., 235, 238.

As was said by Judge Brewer, speaking for the Supreme Court of the United States in the case of *Del Monte M. Co.* v. *Last Chance*, 171 U. S., 55, 75,

> "The location upon the surface is not made with the view of getting benefits from the use of that surface. The purpose is to reach the vein which is hidden in the depths of the earth and the location is made to measure rights beneath the surface. The area of the surface is not the matter of moment, the thing of value is the hidden mineral below."

The discovery of the vein has always been essential and it is contemplated that this should be disclosed in the discovery shaft and the direction of its course and dip ascertained. When this is done, a plane is established on the discovery vein in the direction of the dip or downward course of the discovery vein.

The courts, when dealing with secondary veins, have announced the rule that when the end line planes of a mining location are once fixed they bound the extralateral rights to all the lodes that are thereafter found within the surface lines of the location—otherwise as Judge Hawley has said:

> "End lines would have to be constructed in different directions if the separate lodes or veins found within the surface lines did not run parallel with each other."

Walrath v. *Champion M. Co.*, 63 Fed., 552, 557.

The grant of the extralateral right on these secondary veins must be defined by the original end line planes established on the discovery vein, and in the same direction. If the direction on the discovery vein is North 30° West, the patentee may have an extralateral right to such parts of such secondary veins as may be found between planes established at the termini of such veins extending North 30° West, the direction of the right on the discovery vein. An extralateral right on the reverse course of South 30° East would not be the direction of the plane which defines the extralateral right on the discovery vein.

If the statute were to be construed as liberally as to permit of an exercise of an extralateral right in two directly opposite directions on the same or on different veins, then it would be just as equitable and appropriate to grant an extralateral right through one side line, and also through an end line of the same claim. Assume that we had the apex of a discovery vein crossing an end line and passing out through a side line. Clearly an extralateral right can be exercised on this vein on its dip as it passes underneath and beyond the side line. Assume that the same vein dips out beneath and beyond an end line boundary of the same claim, at about the same angle, or to make the situation still stronger, assume that the apex of a different or secondary vein crosses both side lines

of this claim and dips out beneath the end line. This situation is illustrated by Figure 10, here inserted.

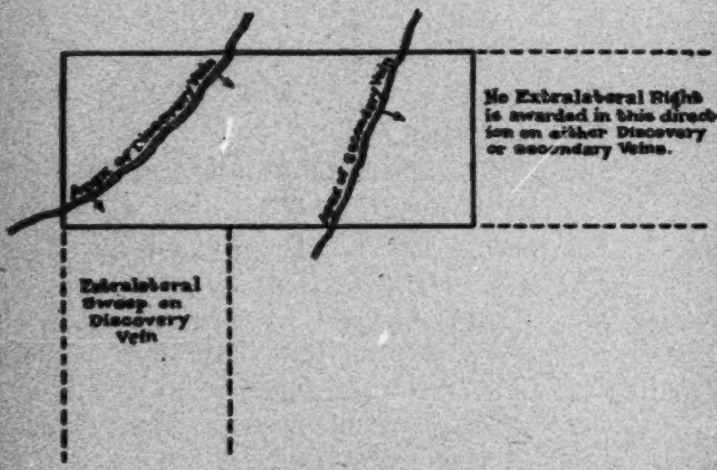

No Extralateral Rights is awarded in this direction on either Discovery or secondary Veins.
Extralateral Sweep on Discovery Vein

FIGURE 10

In either case the interpretation placed on Section 2322 by the courts will not permit the claimant to follow the same or a different vein extralaterally beneath and beyond an end line.

Conkling Mining Co. v. *Silver King Coalition Mines Company,* 230 Fed., 553, 562-3.

It may be said in answer that the courts only recognize one set of end lines, and yet the courts have already constructed side-end lines,

King v. *Amy Silversmith M. Co.,* 152 U. S., 222,

and allow end line planes on discovery and secondary veins to be fixed at entirely different points.

Ajax Gold Mining Co. v. *Hilkey* (Colo.), 72 Pac., 447;
Montana M. Co. v. *St. Louis M. & M. Co.*, 102 Fed., 430;
St. Louis M. & M. Co. v. *Montana M. Co.*, 104 Fed., 664;
Anaconda Copper Co. v. *Pilot-Butte M. Co.* (Mont.), 156 Fed., 409, 415.

Are not end line planes extending Northerly from the West End claim to be considered as utterly different and distinct from end line planes extended southerly from this claim, and if the court in its liberality permits such planes to be extended in opposite directions through opposite side lines, why should not the same liberality permit of extralateral rights through one side line and also through one end line?

This case now before the court is a striking example of the unreasonableness of a claim of the right to exercise an extralateral right on the same vein in different directions. By referring to the stereogram, Figure 2 of this brief, it will be seen that this blanket-like sheet of vein material terminates and is cut off in a Westerly direction against a capping known as Fraction Dacite Breccia, and this "terminal edge" of the vein crosses both side lines of the claim. This occurs within the boundaries of the West End claim,

so that no portion of this blanket-like anticlinal vein reaches the Westerly end boundary of the claim. This anticlinal vein sheet, considered as a whole, has a decided dip or downward course to the East, and passes through and underneath the Easterly end line of the West End claim. This condition is admirably illustrated on both of the skeleton models introduced by plaintiff and defendant respectively. Here we have what is unquestionably a terminal edge of the vein in controversy where the vein abuts up against the later rock capping. It is a buried or blind apex, from which the vein dips Easterly and passes out of the claim still continuing on a downward course to the East. Both of the essential elements of apex, "terminal edge" and "downward course" are here present. Why is it not logical to award the West End claim an extralateral right in an Easterly direction through and beyond its Easterly end line, since the terminal edge of the vein crosses both side lines of the claim? Why should not the West End claim be permitted to exercise extralateral rights both to the North and to the South based on its anticlinal apex theory, and also in a third direction to the East, based on what is unquestionably a terminal edge of the vein crossing both side lines? And assume that we had a dome-shaped occurrence of a vein existing within the boundaries of a mining claim with the vein dipping in every direction from the apex or crest of the dome. Why not award the claimant an extralateral right in four directions?

A REASONABLE INTERPRETATION OF SECTION 2322 WILL NOT PERMIT OF THE EXERCISE OF TWO EXTRALATERAL RIGHTS IN OPPOSITE DIRECTIONS BASED ON THE SAME VEIN.

While we have already pointed out that Section 2322 of the Revised Statutes contains language which does not admit of a construction that will permit of two extralateral grants attaching to the same mining location, and to the same vein and extending in opposite directions, yet if there be the slightest doubt as to the proper interpretation to be placed on this section we must bear in mind that statutes are always to receive the most reasonable and sensible construction possible, so as to avoid injustice and hardship, injury and absurd conclusions, and conform to dictates of natural reason.

Heydenfeldt v. *Daney Gold etc. Co.*, 93 U. S., 634, 638;
Law Our Bew v. *U. S.*, 144 U. S., 47, 59;
In re Chapman, 166 U. S., 661, 667;
Scottish etc. Ins. Co. v. *Bowland*, 196 U. S., 611, 629;
Jacobson v. *Mass.*, 197 U. S., 11, 39;
Low Haw Suey v. *Backus*, 225 U. S., 460, 474.

We refer to Figures 3, 4 and 5, inserted in this brief, and respectfully urge that to grant appellee's contention and permit it to exercise double-barreled extralateral rights on the single flat, blanket-like vein oc-

currence there indicated and sweep the Tonopah mining district in both directions, is to place an unreasonable interpretation on Section 2322, and would lead to unjust and unnecessary hardships.

III.

THE BROKEN END LINE OF THE WEST END CLAIM PREVENTS THE EXERCISE OF ANY EXTRALATERAL RIGHT.

Any of the plats showing the exterior boundaries of the West End claim, the patent description, and the pleadings will all indicate that the West end line of the West End claim is a broken line composed of two segments.

One of the two segments connects the Northwest corner of the claim with the Westerly end center post situated at the intersection with the lode line, and is 313.30 feet in length and has a course of N. 50° 31′ E. The other segment connects the West and center or terminus of the lode line with the Southwest corner of the claim, is 301 feet in length and has a course of N. 11° 20′ W.

This broken end line is in direct contravention of the statute which states explicitly that "The end lines of each claim shall be parallel to each other." Sec. 2320, U. S. Rev. Stats.

And Section 2322, U. S. R. S., provides that the extralateral right shall be confined by

> "vertical planes drawn downward . . . through the end lines of their locations . . ."

It is an impossibility to draw a vertical *plane* downward through this broken end line of the West End claim. The Northerly segment of the Westerly end line is parallel to the East end line of the West End claim, and opposing counsel will select this segment for the purpose of defining its extralateral rights to ignore altogether the other non-parallel segment of the Westerly end line. The statute, however, requires a vertical plane to be passed through the end line and not through a conveniently selected part of it. Counsel will also be confronted with this situation, that a vertical plane passed through the parallel segment of the Westerly end line and extended Southerly toward Jim Butler territory will pass outside of and beyond the end surface boundaries of the West End claim for the entire length of the non-parallel segment and will include a wedge of ground that is not within the limits of the West End vertical boundaries. This wedge segment abuts on to the *Westerly end* of the West End claim and lies beyond the claim in a *longitudinal* direction and cannot under any construction of the situation be termed a part of the extra-*lateral* right or right to pursue the vein *laterally*.

As was said in the Del Monte case

> ". . . the requisition that the end lines shall be parallel was for the purpose of bounding the underground extralateral rights which the owner of the location may exercise. . . . the limits of his right are not to extend on the course of the vein beyond the end lines projected downward through the earth."
>
> *Del Monte M. Co.* v. *Last Chance M. Co.*, 171 U. S., 55, 84.

It should also be noted that while this nonparallel segment of the West end line is a convergent line with reference to the East end line where veins dipping to the South are concerned, that it is a divergent line with reference to the East end line where veins dipping to the North are concerned and the discovery of the West End claim was on the North dipping slope of the vein.

It will not do for defendant to argue that its claim of extralateral right on its alleged South dipping vein does not extend as far West as the West end line of its claim. If fortuitously a vein apex crosses a straight end line and passes out of a claim or terminates within the claim some distance short of a broken end line this does not serve to rectify the situation and does not destroy the logic or law of the case. Defendant might with just as much plausibility contend that under similar circumstances its entire Western end line

can form a divergent angle with the Eastern end line or be a curved line or a broken line with no segments whatsoever parallel to the Eastern end line and still not destroy its extralateral right. The following Figure 11 will illustrate the point.

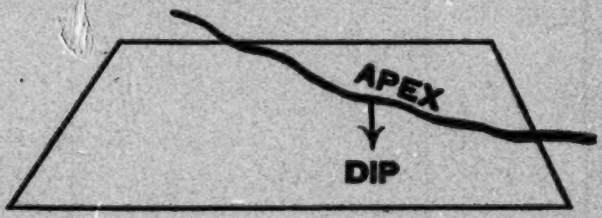


FIGURE 11

There is no inherent necessity that the end lines of a location should be parallel in order that extralateral rights may be measured, and in the illustration here presented it is manifestly a simple matter to pass a vertical plane through the point of departure of the vein apex from the claim and make it parallel to the crossed end line. But the locator has failed to comply with the specific requisition of the statute and it matters not that a rule can be devised whereby an equitable solution of his difficulties can be worked out. The law requiring strict parallelism of end lines is mandatory, so that if a locator sees fit to disobey its explicit terms and accept a patent calling for a broken end

line, he must suffer the penalty and lose his right to pursue the vein extralaterally.

Daggett v. *City of Yreka M. T. M. Co.*, 149 Cal., 357, 373; 86 Pac., 968;
Central Eureka Co. v. *E. Central Eureka Co.*, 146 Cal., 147, 152; 79 Pac., 834.

This Court has spoken definitely on the necessity of having the end lines straight and not broken and in that connection employed the following language:

"In other words, it is the end lines alone, not they and some other lines, which define the extralateral right, and they must be straight lines, *not broken* or curved ones" (p. 311) . . . *"they must be straight—no other define planes which can be continuous in their own direction within the meaning of the statute"* (p. 312).

Walrath v. *Champion M. Co.*, 171 U. S., 293, cited in *Jefferson Min. Co.* v. *Anchoria-Leland M. & M. Co.*, 75 Pac., 1070-74 (Colo.).

"In order to conform the location to the actual course of the vein or lode the side lines may be irregular, and the location is not required to be in any particular form except that the end lines must be straight and parallel to each other."

Belligerent and other Lode Mining Claims, 35 L. D., 22, 26.

See also:

Pilot Hill and other Lodes, 35 L. D., 592.

There is no excuse for the existence of the West End broken westerly end line. The Del Monte case (*Del Monte M. Co.* v. *Last Chance M. Co.,* 171 U. S., 55), expressly decided that the end lines of a location may, in order to make them parallel and comply with the statute, be placed on territory already claimed by prior locators. The Del Monte case was decided in 1897, years before the West End claim went to patent, and there is no valid reason why the doctrine announced in that case was not followed and the westerly end line of the West End claim made a straight line.

> "Congress having prescribed the conditions upon which extralateral rights may be acquired, a party must bring himself within those conditions or else be content with simply the mineral beneath the surface of his territory (p. 66). . . . Thus, for instance, there is no inherent necessity that the end lines of a mining claim should be parallel, yet the statute has so specifically prescribed (Sec. 2220). It is not within the province of the courts to ignore such provision and hold that a locator, failing to comply with its terms, has all the rights, extralateral and otherwise, which he would have been entitled to if he had complied, and so it has been adjudged" (p. 67, Del Monte case).

The Supreme Court of Nevada in its opinion below (Transcript Vol. II, p. 692) excuses the existence of

this non-parallel segment of the end line by assuming that the West End claim as originally located probably had a straight end line throughout, but the triangular area included between such assumed straight end line and the present broken segment was "excluded from the patent application because in conflict with prior existing locations." There is not one scintilla of evidence in the record to support this erroneous assumption. The court below goes on to state that the Del Monte case, above cited, permits a locator to lay his lines upon prior existing claims in order to secure parallelism of end lines, and then comes to the conclusion that if the locator does this and in his application for patent excludes these conflict areas "resulting in patented surface boundaries of irregular shape," that he still possess all the advantages he originally enjoyed before he excluded these areas.

The argument is novel and is not, we respectfully submit, supported by either logic or law. If a mining claimant sees fit to go to patent without availing himself of the privileges afforded by the Del Monte case, he most certainly is not in any position after applying for and accepting "patented surface boundaries of irregular shape," to thereafter excuse himself from the limitations imposed by his own error and show that prior to patent he had conformed to the law. In this case, be it remembered, however, that there is no evidence whatsoever upon which to base an assumption that the West End claim ever had a straight Westerly end line.

It would have been a simple matter to have established this if it had been a fact.

The existence of this broken end line is alone sufficient reason for denying any extralateral right to the West End claim.

We feel justified in asserting that we have established the following propositions:

1. That one of the essential elements of an apex is a "terminal edge" and that when the vein turns over and dips in an opposite direction, the resulting anticlinal roll has no legal apex, as is held by all the authorities that have considered the question.

2. That Section 2322 of the Revised Statues does not justify the exercise of an extralateral right on the same vein on two downward courses and in opposite directions, since the wording of the statute will not permit of such a construction. This is especially true where the limb of the vein on which the discovery was made dips in the opposite direction from the limb in which the disputed ore bodies occur.

3. That the westerly end line of the West End claim is a broken line, which is in contravention of the mandatory provision of the statute requiring end lines to be parallel and necessarily straight.

In a camp like Tonopah, with its deeply capped veins and extensive faulting, the extralateral right

law is a misfit and to unnecessarily extend its scope in such a camp will result in untold and unforeseen hardships to other operators who have expended large sums of money in good faith.

We respectfully submit that the judgment should be reversed with direction to the trial court to enter judgment for plaintiff in error and to take such other and further proceedings in the cause as may be equitable and proper.

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In the Supreme Court of the United States

October Term, 1917.

No. 249.

JIM BUTLER, TONAPAH MINING COMPANY, A CORPORATION,
Plaintiff in Error,
vs.
WEST END CONSOLIDATED MINING COMPANY, A CORPORATION,
Defendant in Error.

Brief of Defendant in Error.

At the outset we invite the court's attention to the following facts which, if not conceded by plaintiff in error, are not (in light of the findings of fact made by the trial court, unchallenged by any assignment of error) open to controversy in this tribunal.

I.

The West End patented mining claim is the property of the defendant in error.

II.

That there is a vein or lode in said claim which at its top, that is, at the line or plane where in its upward course it ceases or terminates, crosses the easterly located end line of the claim and thence traverses the same in a northwesterly direction for a distance of 1142½ feet, at which point it departs from the claim over the northerly side line thereof.

III.

That this vein has a dip in a southerly direction and in its southerly downward course so far departs from the perpendicular as to pass beyond the southerly side line of said claim and into and beneath the surface of the Eureka and Curtis claims, the property of plaintiff in error.

IV.

That all of the ore bodies in controversy belong to and are a part of this vein and all such are embraced between planes, one drawn vertically downward through the east end of the claim, extended indefinitely southerly in its own direction, and another parallel thereto, drawn through a point where the vein at its top or summit crosses the northerly side line of the claim as aforesaid. (It has long been settled law that where a vein at its top or apex crosses an end line and a side line of a claim, the owner is entitled to follow the same throughout its enitre depth between vertical planes drawn, one through the end line so crossed, and the other parallel thereto

through the point where the vein departs from the claim over the side line.) *(Del Monte M. & M. Co.* vs. *Last Chance M. & M. Co.*, 171 U. S. 55, 86-91.)

It would seem, therefore, that these ore bodies belong to and are the property of defendant according to the plain letter of Section 2322 U. S. Revised Statutes, which provides as follows:

> "The locators of all mining locations heretofore made or which shall hereafter be made, on any mineral vein, lode, or ledge, situated on the public domain, their heirs and assigns, * * * so long as they comply with the laws of the United States, and with state, territorial, and local regulations not in conflict with the laws of the United States governing their possessory title, shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes, or ledges may so far depart from the perpendicular in their course downward as to extend outside the vertical side-lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end-lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges," etc.

Plaintiff in error, however, denies the right of defendant to pursue this vein in its southerly downward course extralaterally and bases its denial upon the following grounds:

1. That even within the extended end line planes of a lode claim, the locator cannot have extralateral rights in opposite directions, either upon one and the same, or upon two separate and distinct veins; that if, for instance, a location which is laid in an easterly and westerly direction covers and includes within its surface boundaries extended downward vertically the tops or apices of two separate and distinct veins, one the discovery, the other a secondary vein, the former dipping northerly, the latter southerly, the locator can have no extralateral right whatever upon the secondary vein, notwithstanding it, as well as the discovery vein, at its top or apex, traverses the claim from end to end. And that in the case of a location upon a vein which is found in the form or shape of a single anticlinal fold, if the location is based on a discovery made at some point on the northerly limb or side thereof, the locator can be awarded no extralateral right whatsoever upon the southerly side or limb, notwithstanding the location is so laid as to cover the entire width or axis of the lode from end to end.

2. That the vein or lode here involved is found in the form of a single anticline, the crest or axis of which crosses the easterly end line of the West End claim and thence traverses the claim in a northwesterly direction to a point where it crosses the northerly side line thereof; that one side or limb of the anticlinal fold dips northerly and the other southerly, and that a vein or lode in such form has no top or apex within the meaning of the law.

3. That the westerly boundary of the West End claim is not a straight, but a broken line, not parallel

throughout to the east end line of the claim; hence, the owner of the claim is not entitled to extralateral rights on any vein whatever, the top or apex of which may be found within the surface boundaries of the claim extended downward vertically, and this because Section 2320, United States Revised Statutes, provides that the end lines of each claim shall be parallel to each other.

We will consider these propositions in the order in which they are here stated.

I.

We submit that the first of these contentions, namely: that even within the extended end line planes of a lode claim the locator cannot have extralateral rights in opposite directions, either upon one and the same, or upon two separate and distinct veins, is repugnant to the plain letter and obvious spirit and intent of Section 2322 above quoted. The statute says:

> "The locators of all mining locations * * * made on any mineral vein, lode or ledge * * * their heirs and assigns * * * shall have the exclusive right of possession and enjoyment * * * of all veins, lodes, and ledges throughout their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically, although such vein, lodes, or ledges may so far depart from the perpendicular in their downward course as to extend outside of the vertical side lines of such surface locations."

Plaintiff says:

> "No, not all, but such only the downward courses of which are in the same general direction as that of the discovery vein."

The statute cannot be so restricted or limited without interpolating words which are not found therein. This, we submit, is not within the province of the judiciary. Where the language of a statute is clear and unambiguous, it is its own expositor and the courts have no choice but to give effect to the law as it is written. And this is especially true where the statute, if administered in accordance with the clear import of its terms, would lead to no injustice or result in no absurdity.

In *McCluskey* vs. *Cromwell*, 11 N. Y. 593, the court, at page 601, says:

> "It is beyond question the duty of courts in construing statutes to give effect to the intent of the law-making power and seek for that intent in every legitimate way. But * * * first of all in the words and language employed, and if the words are free from ambiguity and doubt and express plainly, clearly and distinctly the sense of the framers of the instrument, there is no occasion to resort to other means of interpretation. It is not allowable to interpret what has no need of interpretation."

This fundamental rule has been repeatedly announced by this Honorable Court and it is needless to multiply citations in support of it.

In the brief of plaintiff in error, at page 30, it is said:

> "The vital part of the grant which bears on this

question is contained in the language of Section 2322 of the Revised Statutes which confines the extralateral segments of the vein

"'to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued *in their own direction* that such planes will intersect such exterior parts of such veins or ledges.'

"This language, we respectfully submit, only admits of the interpretation that such planes shall be extended in one direction, and that would be in the direction of the dip of the vein on which the discovery was made. If the statute bore the interpretation claimed for it by defendant, the language would have read *'in both directions.'* Since it did not, the inference is clear that bifurcated, or double barreled extralateral rights were not contemplated."

We confess our inability to discover any force in this suggestion of our learned friends. A straight line may be said to have two directions. If a line were drawn due north and south, an observer standing at the northerly terminus and looking toward the other end would naturally say that the direction of the line was south. Another observer standing at the southerly terminus and looking toward the opposite end would naturally say that the direction of the line was north.

The east end line of the West End claim, for instance, is laid in a northerly and southerly direction. If we start at the southeast corner of the claim and travel to the northeast corner we proceed in a northerly direction; while, if we start at the northeast corner and travel to

the southeast corner, we are following the line in a southerly direction. If that end line were continued northerly in its own direction for a distance, we will say, of 500 feet, and also continued southerly in its own direction for a like distance, the direction of the line would not be changed, of course; and if a vertical plane were passed through the end line thus extended, we would have but one plane and it would be a plane in the direction of the easterly end line of the claim continued.

From the language of the section here under discussion, it is manifest that Congress recognized that within the surface boundaries of a claim there might be found the top or apex of more than one vein, and it must have been foreseen by Congress that if there were two or more such veins, the dip or downward course of each of the secondary veins might be in a direction quite different—even opposite—from that of the discovery vein. The downward course of one and the same vein may differ widely as it is followed to the deep from level to level by mine workings. (This is recognized in *First Lindley on Mines*, Section 319, at page 724.)

The Rainbow lode in Butte-Montana is found, where the Elm Orlu claim is laid upon a portion of its apex, dipping in a southerly direction from its top or outcrop to the 800 foot level, at or about which depth it changes from a southerly dip or downward course to the vertical, and then in a short distance changes again to a northerly dip, with an angle of less than 50 degrees from the horizontal; it is followed down to the 1300 level or thereabouts, where it is again found in a vertical position.

We are informed, and we believe correctly, that the great Comstock lode in Nevada, especially in the vicinity of the Ophir and contiguous claims laid upon it, dipped from its outcrop westerly for some hundreds of feet, and then changed to a pronounced easterly dip.

The late Senator Stewart of Nevada, who, we understand, was the author of the Act of 1872, was a mining lawyer of eminence and of large experience in lode mining in the western states, and must have been familiar with the striking irregularities found in veins, not only longitudinally, but in their downward course; and had the intent been to limit the extralateral right on secondary veins to those the downward course of which was in the same direction as that of the discovery vein, language, of course, would have been employed expressive of that intent, instead of the all-comprehensive words of the section, "all veins, lodes and ledges throughout their entire depth the top or apex of which lies within such surface lines," etc.

In *Iron Silver Mining Co.* vs. *Elgin Mining Co.*, 118 U. S. 196, it is said at page 207:

> "It often happens that the top or apex of more than one vein lies within such surface lines, and the veins may have different courses and dips; yet his right to follow them outside of the side lines of the locations must be bound by planes drawn vertically through the same end line."

In *Del Monte M. & M. Co.* vs. *Last Chance M. & M. Co.*, 171 U. S. 55, it is said at page 88:

> "* * * we find from Section 2322 that he is entitled to 'all veins, lodes, and ledges throughout

their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically.' Every vein whose apex is within the vertical limits of his surface lines passes to him by virtue of his location. He is not limited to only those veins which extend from one end line to another, or from one side line to another, or from one line of any kind to another, but he is entitled to every vein whose top or apex lies within his surface lines. Not only is he entitled to all veins whose apexes are within such limits, but he is entitled to them throughout their entire depth, 'although such veins, lodes, or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of such surface locations.' In other words, given a vein whose apex is within his surface limits, he can pursue that vein as far as he pleases in its downward course outside the vertical side lines. But he can pursue the vein in its depth only outside the vertical side lines of his location, for the statute provides that the 'right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or lodes.'"

And at page 88-90:

"Our conclusions may be summed up in these propositions: First, the location as made on the surface by the locator determines the extent of rights below the surface. * * * Third, every vein 'the top or apex of which lies inside of such surface lines extended downward vertically' becomes his by virtue of his location, and he may pursue it to any depth beyond his vertical side

lines, although in so doing he enters beneath the surface of some other proprietor."

And in *Calhoun Gold Mining Co.* vs. *Ajax Gold Mining Co.*, 182 U. S. 499, this court, at pages 508-9 (referring to Section 2322) says:

"* * * There are no exceptions to its language. The locators 'of any mineral veins, lode, or ledge' are given, not only 'an exclusive right of possession and enjoyment' of all the surface included within the lines of their locations, but '*of all veins, lodes, and ledges throughout their entire depth*, the top or apex of which lies inside of such surface lines extended downward vertically.' A locator, therefore, is not confined to the vein upon which he based his location and upon which the discovery was made. 'All veins or lodes having their apices within the plane of the surface lines extended downward are his, and possession of the surface is possession of all such veins or lodes within the prescribed limitations.' Barringer & Adams, Mines & Mining, page 44.

* * * * * * *

"And this court said, speaking by Mr. Justice Brewer, in *Campbell* vs. *Elliot*, 167 U. S. 116, 42 L. Ed. 101, 17 Sup. Ct. Rep. 765:

"'But the patent is not simply a grant of the vein, for, as stated in the section, 'a patent for any land claimed and located for valuable deposits may be obtained in the following manner.' It must also be noticed that Section 2322, in respect to locators, gives them the exclusive right of possession and enjoyment of all the surface within the lines of their locations, and all veins, lodes, and ledges, the tops or apices of which are inside such lines. So that a location gives to the locator something more than the right to the vein which is the occasion of the location.' * * *

> "The only condition is that the veins shall apex within the surface lines. It is not competent for us to add any other conditions. Blind veins are not excepted, and we cannot except them. They are included in the description 'all veins' and belong to the surface location."

There are many decisions, both state and federal, in which identical expressions are found.

So far as we have been able to discover, it has never occurred to any court, in any case, that the provision of the statute granting to the locator the ownership and enjoyment of all veins throughout their entire depth the tops or apices of which are found within the surface lines of his claim, needed any such qualification as plaintiff is here insisting upon. To no court, apparently, has the thought ever occurred that in order to have an extralateral right upon the secondary vein or secondary veins the downward course of such secondary vein or veins must be in the same general direction as that of the discovery vein. We feel justified in saying that in no case will there be found even a hint that any such limitation would be permissible under the language of the Act. Neither in the text of any of the text writers is there found any intimation, so far as we have been able to discover, that such a limitation could be placed upon the statute by interpretation.

Again, as has been said by many courts, including the Supreme Court of Nevada in the instant case, the intent and purpose of Congress in this legislation was to encourage the search for and the development of the

mineral wealth of the nation. The statute should be so administered as to further this end.

Now, we will assume that in a lode location laid in an easterly and westerly direction there are found two separate and distinct veins, each of which at its top or apex and on its course traverses the claim lengthwise thereof from end to end—one, the discovery vein, we will say, dipping northerly, and the other, a secondary or subsidiary vein, dipping southerly. The development of the wealth of the latter was due to the energy and enterprise of the locator of the claim. To award him extra-lateral rights thereon would be to encourage the development of the mineral resources of the district, and a decision upholding his right to pursue this vein throughout its entire depth between the end line planes of his location would give effect to the plain letter of the law. It is as clearly embraced within the language of the Act—"all veins, lodes, and ledges," etc., as is the discovery vein itself. On the other hand, the effect of a decision upholding the contention of plaintiff in error would be not to encourage, but to retard development, and such a decision also would be as plainly inequitable as it would be violative of the plain letter of the statute. It would deny the locator through whose energy the vein was found and developed, the right to follow it beyond a vertical plane passed through the southerly side line of his location: all the balance of the vein in its downward course would be handed over to his neighbor, who is not only a stranger to its discovery, but who never expended a dollar in its development; moreover, neither this neighbor nor any

other citizen could ever make a valid location based upon it, for no location could be made thereon which would include the top or apex of the vein. And, as said in *First Lindley on Mines,* Section 31, page 111:

> "Under the Act of 1872 the miner locates a surface, which must be so defined as to include the top, or apex, of his lode. Failing in this, he obtains nothing. If he mistakes the course of his vein, it is his loss. He can only hold the vein on its course to the extent that the top, or apex, thereof is found within his boundaries. He may thus acquire a superficies fifteen hundred feet in length by six hundred feet in width, if local regulations do not restrict these measurements.
>
> "In other words, under the old law he located the *lode.* Under the new, he must locate a piece of land containing the top, or apex, of the lode. While the vein is still the principal thing, in that it is for the sake of the vein that the location is made, the location must be of a piece of land including the top, or apex, of the vein."

This passage from Lindley has been quoted by this court with approval in the case of *Calhoun Gold Mining Co.* vs. *Ajax Gold Mining Co.,* 182 U. S. 499, 508, and again in *St. Louis M. Co.* vs. *Montana M. Co.,* 194 U. S. 235, 238.

Sketch No. 1, opposite page, illustrates another situation which might be encountered if plaintiff's contention were to receive the sanction of this court.

(Owing to the marked irregularities which are often found in the downward course of a vein, the situation depicted on the diagram is one which may frequently be developed or encountered. By the provisions of U. S.

Sketch 1.

NORTH
VERTICAL
CROSS SECTION
OF VEIN.
A
Surface
North Side Line of Location extended vertically
downward from point where cut by plane of section.
VEIN
South Side Line of Location extended vertically
downward from point where cut by plane of section.
B
C

Revised Statutes, Section 2320, the width of a lode location may be by local rules and regulations of miners, limited to not more than 25 feet on each side of the center of the vein at the surface, and it is common knowledge that in many districts these rules and regulations do limit the width to 100 feet on each side.)

On the diagram is shown the downward course of a vein in cross section; also the vertical downward course of the northerly and southerly side lines, of a location laid upon the vein at its apex, from the points where these lines are, respectively, cut by the plane of section. There is but one vein, to-wit: the discovery vein; it has its top or apex within the surface lines of the claim, and, as cut by the plane, is found at the point marked "A." Now, in its downward course this vein extends southerly from its apex to and across the southerly side line of the location to the point marked "B," from which point its downward course is found to be northerly until it crosses the northerly side line of the claim at the point marked "C."

Under plaintiff's contention the locator of this vein would lose it when it passes through the northerly side line of the claim at point "C." His extralateral right would already have been exercised southerly, and we are told that it cannot, in any event, be exercised in the opposite direction. The locator who discovered and developed it would lose his right to pursue it beyond a vertical plane passed through his northerly side line. And yet, no one could make a valid location based upon that por-

tion of the lode found in its downward course northerly of that line.

We confidently submit that no such result as this could have been within the contemplation of Congress. It is a result, moreover, which cannot be reached without disregarding the clear and explicit language of the statute. Assuming that the court will give effect to the law as it is written, we pass to the consideration of another subject.

II.

We are brought now to a discussion of another of plaintiff's contentions, namely, that in all cases, under all circumstances, no matter what the form or shape of an ore body may be, it can have no top or apex within the meaning of the law, unless it is found where it terminates in its upward course in the form or likeness of a terminal edge; that the words "top" and "apex" imply *a terminal edge*, and therefore no vein in the form of a single anticlinal fold can have a top or apex within the meaning of the law. The term "terminal edge" as descriptive of the top or apex of a vein, is not found in the Act of Congress. It is true, however, that in a number of cases it will be found that the courts generally in instructions given to juries as to what is meant by the top or apex of a vein, have spoken of it as the "terminal edge thereof," or "where the vein is found at or nearest to the surface as it is followed in its upward course." In other cases the top or apex has been defined as "the highest or terminal point of the vein" or "where it approaches nearest the

surface of the earth and where it is broken on its edge so as to appear to be the beginning or end of the vein." Such expressions or definitions of top or apex, as used in the Act, are altogether apt and free from criticism as applied to the vast majority of veins or lodes, for with rare exceptions veins are found to occupy a position in the mass of the mountain between the horizontal and the vertical, as though standing on edge, and of course the top or apex of every such vein would present the appearance of a terminal edge as though it were the end or the beginning of the vein.

But the rule is fundamental that any language found or expression used in a decision of any court is to be read, understood and applied in the light of the facts of the particular case with which the court is dealing. As said by Chief Justice Marshall, in the celebrated case of *Cohen* vs. *Virginia*, 6 Wheat., at p. 399:

> "It is a maxim not to be disregarded that general expressions in every opinion are to be taken in connection with the case in which those expressions are used. If they go beyond the case they may be respected, but ought not to control a judgment in a subsequent suit when the very point is presented for decision. The reason of this maxim is obvious. The question actually before the court is investigated with care and considered in its full extent. Other principles which may serve to illustrate it are considered in their relation to the case decided, but their possible bearing on all other cases is seldom completely investigated."

And in *Parsons* vs. *District of Columbia*, 107 U. S. p. 45, the court says:

> "It is trite to say that general principles announced by courts which are perfectly sound expressions of the law under the facts of the particular case may be wholly inapplicable in another and different case."

And again, Chief Justice Marshall, in *Ogden* vs. *Saunders*, 12 Wheat. 198, in a dissenting opinion, but not dissenting upon this question, said:

> "It is a general rule expressly recognized by this court that the positive authority of a decision is co-extensive only with the facts on which it is made."

See also:

French v. *Barber Asphalt Paving Co.* (U. S.), 45 Law Ed., at page 898;

Hans v. *Louisiana*, 134 U. S., pp. 1, 20;

Leisy v. *Harden*, 135 U. S. 100, 134-5;

Northern Bank v. *Porter Township*, 110 U. S. 608, 615;

Fidelity Trust Co. v. *Gill Car Co.*, 25 Fed. 737, 748;

Southern Railway Co. v. *Simpson*, 131 Fed. 705, 709;

St. Louis L. M. & S. Ry. Co. v. *Davis*, 132 Fed. 629, 635;

Mayor v. *Erhardt*, 88 Ill. 452, 457;

In re Johnson, 98 Cal. 531, 541-2;

Ex parte Young Ahgow, 73 Cal. 438, 448-450;

Hart v. *Burnett*, 15 Cal. 530, 598-9.

We know of no case where a court has heretofore been called upon to define or determine what, within the meaning of the Act, is to be regarded as the top or apex of a vein or lode, having the form of a single anticlinal fold.

Such a deposit is a vein or lode within the meaning of the Act of Congress. As said by Hallett, Judge, in *Stevens* vs. *Williams,* 23d Fed. Cases (No. 13,414), at p. 45:

> "It has been decided that Congress, in passing this Act, intended by this description to embrace and include all forms of deposit which are located in the general mass of the mountain."

See, also, *Hyman* vs. *Wheeler,* 39 Fed. 347, 355, and *Iron Silver Mining Company* vs. *Cheesman,* 116 U. S. 529, 535.

It must have a top in the nature of things, else we have a vein with sides, ends, two bottoms and no top. As said in *2nd Lindley,* Section 309, at p. 686:

> "As absolute horizontality does not exist in nature, every vein, lode or deposit, whatever its form, has either an upper and lower edge or a top and a bottom, as well as sides. It may be difficult to find them, or to determine their relative position, but they exist, in the nature of things."

No arbitrary definition of the words "top" or "apex" can be adopted, perhaps, which would be applicable to all cases, any more than a definition of the word "vein" itself could be adopted which would be universally applicable.

In *1st Lindley*, Section 289, at page 644, the author says:

> "We do not conceive that from a judicial standpoint it is a matter of vital importance that the miner and the scientist should harmonize their differences on the subject of mere definition. The danger lies in accepting the definition of either as broadly comprehensive or rigidly restrictive, and attempting to apply them to conditions not within the reasonable contemplation of the law, or in attempting to deprive a locator of the benefit of his discovery, if the thing discovered cannot be forced into the mold of arbitrary definition, either popular or scientific."
>
> "If in the construction of the terms used in the mining laws there is one evil to be avoided as great as the servile adherence to arbitrary definition, it is the blind application of a rule announced in one case, where local conditions may justify it, to other cases, where a similar application of the rule, by reason of modified or totally different conditions, would produce absurd results.
>
> "'Many definitions of veins have been given, varying according to the facts under consideration. The term is not susceptible of arbitrary definition applicable to every case. It must be controlled, in a measure at least, by conditions of locality and deposit.' (Citing *Beals* vs. *Cone*, 27 Colo. 473.)"

And Judge Hawley, in *Book* vs. *Justice Mining Co.*, 58 Fed. 106, 121, says:

> "Various courts have at different times given a definition of what constitutes a vein, or lode, within the meaning of the Act of Congress; but the definitions that have been given, as a general rule, apply to the peculiar character and formation of the ore deposits, or vein matter," etc.

Again, the word "top," as used in the Act of Congress, is to be understood in its popular sense. The word had no place in the vocabulary of the miner. Its first use, in connection with the term "vein" or "lode" is found in the Act.

See *Duggan* vs. *Davey*, 26 N. W. 887;

Stevens vs. *Williams*, 1st Morrison's Mining Reports, 557, 561.

"Words in common use and not technical, employed in a statute, which is intended to be understood and practiced upon by the people, should be construed according to their popular meaning; that such was the intention of the Legislature is the only intendment that ought to be adopted."

Sutherland on Statutory Construction, Sec. 257.

Even where a word, found in a statute, has a technical or scientific as well as a popular meaning, the author says:

"* * * the courts will accord to it its popular signification, unless the very language of the subject indicates, or the context suggests, that it is used in its technical sense."

Sutherland, Sec. 250.

In the case of *Brewer* vs. *Harris*, 5 Grat. 298, the court said:

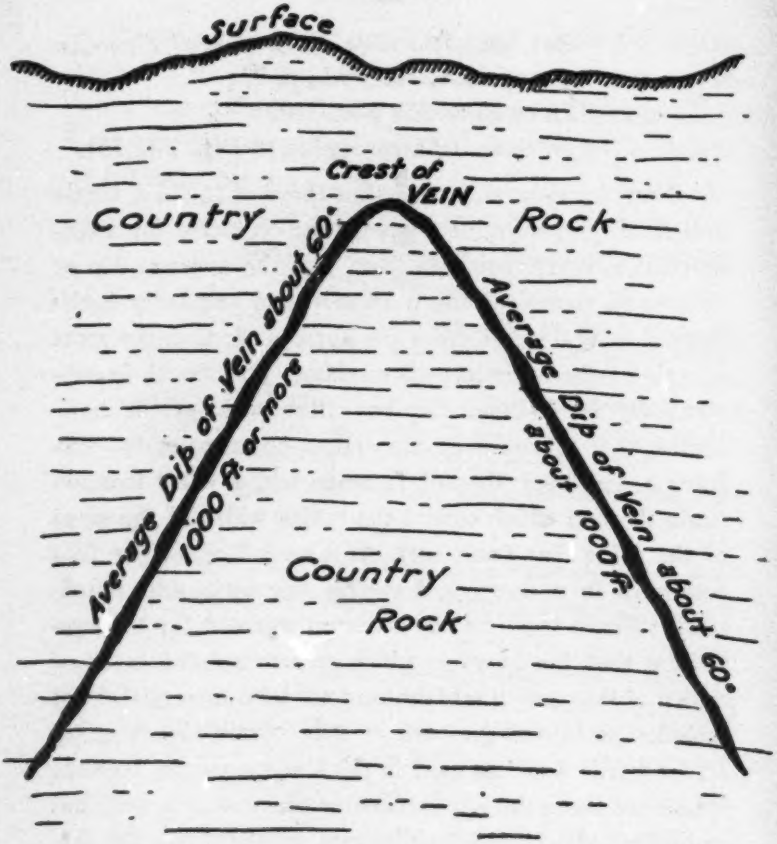
"In the use of language not technical, the legislature must be supposed to express their meaning according to the sense in which it will be understood by the persons for whom they legislate."

See *Gross* vs. *Fowler*, 21 Cal. 393, 396-7;

See, also, *Corning* vs. *Board of Commissioners*, 102 Fed., p. 57;
In re Ellis, 179 Fed. 1002;
U. S. vs. *Chesebrough*, 176 Fed. 778, 781.

Now, let it be supposed that there is found a single anticlinal vein coursing easterly and westerly for a distance of several thousand feet; that the average dip or downward course of the northerly and southerly limbs thereof is 60 degrees from the horizontal; that the crest or axis of the anticline throughout its length is substantially level, departing but slightly from the horizontal; that this crest is exposed or outcrops at the surface; a discovery thereof is made and a valid location made thereon which covers the entire width of the crest of the fold; that from such crest each limb of the fold continues in a downward course regularly and indefinitely; would there be any rational warrant for the contention that the location which so covered the crest or crown of this anticlinal vein was not laid upon or did not include the top of the vein or lode within the meaning of the word "top" as used in the statute, simply because it had not there the appearance or likeness of a terminal or broken edge? On the diagram, Sketch 2, on the following page we show a cross section taken through such a vein. Now, let it be supposed that each side or limb of such a vein has been developed to a depth of 1000 feet or more and for the full length of the claim in which it is found, or 1500 feet, and that the cross section shown on the diagram is fairly representative of the form or shape of the vein from end to end; if a layman, a miner or,

Sketch 2.


Surface
Crest of VEIN
Country Rock
Average Dip of Vein about 60°
1000 ft. or more
Average Dip of Vein about 60°
about 1000 ft.
Country Rock

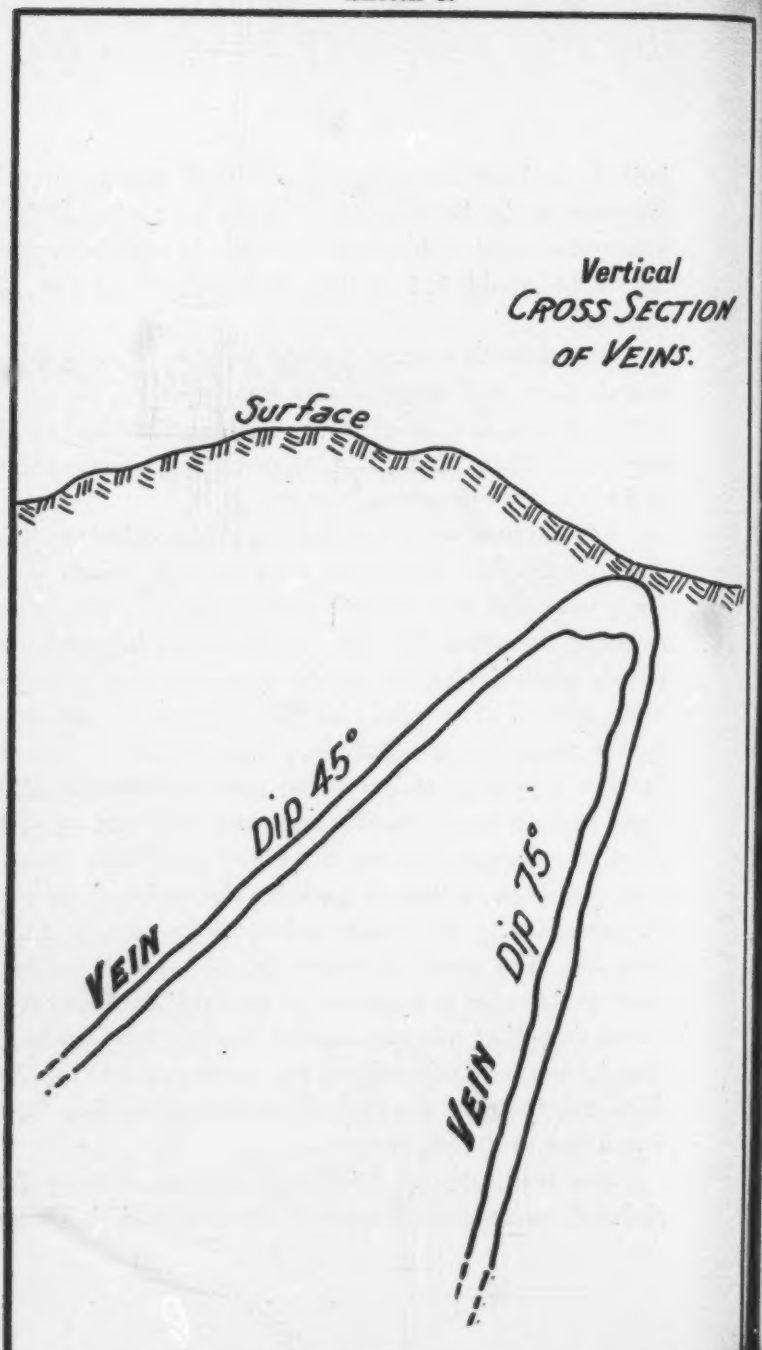
indeed, anybody but a highly educated expert, carried away by zeal in the cause of his client, were asked to designate the top of such a vein, can there be any doubt that his reply would be? "Why, the crest of the roll, of course."

Again, let us suppose that we have two fissure veins coursing, we will say, easterly and westerly, the more northerly one at an angle of 45 degrees, the other of 75 degrees. (Sketch No. 3, on following page, shows these two veins in vertical cross sections.)

(And here we direct the court's attention to testimony in the case free from conflict, from which it is made to appear that the wall rocks or the country rocks, so-called, in which the vein or veins here involved are found, were, during the period when the vein or veins were formed or created, soluble and readily attacked by the mineralizing solutions which circulated through fissures affording channels for their circulation; that these rocks being permeable and easily attacked by such solutions, were *pari passu* in the process of vein formation, dissolved particle by particle, and replaced particle by particle with the metals and minerals carried in the solution. The extent to which this process of replacement was carried is evidenced by the fact that today it is found that what was once barren country rock has been thereby not only mineralized but converted into ore for distances from the channel of circulation varying from 5 or 6 feet to 40 feet, or more.

See testimony of *Professor Lawson,* witness for plaintiff, on cross-examination, Transcript, Vol. II, pp.

Sketch 3.


Vertical
CROSS SECTION
OF VEINS.
Surface
Dip 45°
VEIN
VEIN
Dip 75°

597-598; *Chandler,* witness for defendant, Transcript, Vol. I, pp. 130-1; *Jussen,* witness for defendant, Transcript, Vol. I, pp. 107-8; *Wiley,* witness for defendant, Transcript, Vol. 1, pp. 39 and 51; and *Searles,* witness for plaintiff, Transcript, Vol. II, pp. 536-7.)

In their course upward these veins, of course, approach each other and at or beneath the surface form a union and the wall rock, being soluble, has been converted into ore so that at and for some distance below the junction of the two the ore extends from the one to the other uninterruptedly and at the plane of juncture and for some distance beneath the same there is the appearance of one vein only, the top of which does not appear as a "terminal" edge, but is in the form of a crest or dome. We will say that that condition exists throughout the entire length of the claim, and that below the plane of juncture or below the plane where we have the appearance of but one vein at the top or summit, each has been followed to the deep for more than 1,000 feet, going down with all the regularity found in the most regular of veins. Now, if one were asked where the top of that vein or those veins was, could there be any other answer than one, namely, the summit of the two, the dome or crest of the two? If this crest or summit of these two veins cannot be treated and regarded as the top or apex because it is not there found in the likeness of a terminal edge, the conclusion, of course, is inevitable, and as irrational as it is inevitable, that neither of these veins has any top or apex within the meaning of the law. Neither of them is

horizontal and both of them have a decided dip or downward course. They are lodes or veins within the meaning of the law, for the statute applies and was intended to apply, as we have seen, to all veins or lodes, no matter what the form or shape of the same might be. And yet, under appellant's contention, the citizen who discovered this vein at its summit and made a valid location thereon covering such crest from end to end, must be denied the right to pursue either of the two extralaterally because being united at and for some distance below their summit or nearest approach to the surface, neither there presents to the eye the appearance of a terminal edge and therefore neither of them has any top or apex. (Of course no one can follow any vein extralaterally, the top or apex of which is not found within the surface boundaries of his claim.) We submit that a contention which leads to such an absurd and inequitable result, ought not to, and we cannot believe will, receive the endorsement of the court.

In this illustration we have neither a vein in the form of a single anticline with opposite dipping limbs, nor have we two veins with separate tops or apices dipping in opposite directions. We have two veins, the downward course of both being in the same general direction, which in their upward course have united and the ores of the two at the plane of union and for some distance below are intermingled—by the process of replacement the soluble wall rock has itself been converted into ore for some distance from the channel of circulation, so that at the summit of the two and for some distance below,

there is apparently but one vein, and that not in the form of a terminal edge but in the form of a crest. According to plaintiff's contention, the citizen who has located a mining claim so as to cover this crest in its entire width from end to end of the claim, can have no extralateral right upon either vein, and this for the reason, solely, that neither, where it terminates in its upward course, is found in the likeness of a terminal edge. Notwithstanding the language of the Act secures to the locator all veins throughout their entire depth, the tops or apices of which lie within his surface lines, the court is here asked by plaintiff in error to conclude and decide that it was the intention of the author of the bill and of Congress in enacting it, that one who had discovered such an ore deposit at its crest or summit and made a valid location thereon covering the width thereof throughout the length of his location, should be denied the right to follow either of the veins in its downward course beyond his vertical boundaries, and this simply because neither in its upward termination had the appearance of a terminal edge. It is an undue tax upon one's credulity to ask him to believe that it was the intention of the law-maker that whether the citizen who had discovered and developed a vein or lode should be denied, or permitted to enjoy, the fruits of his skill, industry and energy, would be made to depend upon the flimsy distinction plaintiff insists upon, to-wit: the appearance, shape or form of his vein where it terminates in its upward course, whether at or beneath the surface. With

respect and deference to our learned friends, their contention in this regard, we submit, borders upon the preposterous, and must be rejected. If it must be rejected, it follows, necessarily, that plaintiff's contention that the crest of a vein in the form of a single anticline cannot be regarded as the top, that a vein in such form has no top or apex because it has no terminal edge, must also be held to be untenable.

To further test the soundness, or to disclose the fallacy, in this contention of plaintiff: We will suppose that we have two parallel fissure veins coursing easterly and westerly, one dipping to the north, the other to the south; that these veins traverse the country for a distance of 5000 feet or more; that throughout the extreme westerly 1500 feet both veins are found at the surface, each having its independent top or apex, the distance between the two being, we will say, 25 feet; that throughout the next 1500 feet easterly we find that the two veins in their upward course have intersected or united, the country rock being permeable, soluble and readily acted upon by the mineralizing solutions which found their channel or circulation through the two fissures, has been converted into ore at the summit of the two and downward for some distance below the same so that we have here the appearance of one vein only at the surface or at the outcrop or wherever the summit or top is found, whether at or below the surface, the top or summit where the two veins are thus united being in the form of a crest; then we will suppose that throughout the next 1500 feet easterly, as the result of erosion, we again find these two

veins at the surface as separate veins, each having its own independent top or apex.

Now, we will suppose that Mr. Smith has laid a location on the extreme westerly 1500 feet, a location which covers the top of both of these separate veins, the one dipping to the north and the other to the south. (We believe we have already demonstrated that under the law he would have the right to follow both of them indefinitely to the deep between his end line planes extended.) Mr. Brown makes a location on the extreme easterly 1500 feet where again, as the result of erosion, we have the two veins coming to the surface, each having an independent top or apex; Mr. Brown's location covers the top or apex of both. He likewise has the right to follow both of these veins indefinitely to the deep. But Mr. Jones has laid his location between that of Smith and Brown, on that portion of the two veins where they have intersected or united, thus giving at the outcrop or at the summit of the two the appearance of but one vein which is there found in the form of a crest. He, if there be any justification for appellant's contention, has no extralateral rights whatever on either vein.

It is unbelievable, we submit, that Congress could ever have intended or contemplated that the extralateral right of the locator should be recognized or denied upon any such irrational, purposeless distinction as that would be. There is no top in this intervening section, we are told, because the vein there has not the appearance of a terminal edge. What is the downward course of the two thus uinted? The word "top," and the word "apex,"

are associated in the statute with the words "downward course" and the meaning of the word "top" or "apex" can only be arrived at by bearing that association in mind.

We have these two veins followed upward from the deep and in this intervening or middle 1500-foot section, where, at the top or summit, they have formed a union, there is no difficulty whatever in ascertaining what the downward course of each of the two is. How is the top of the vein to be ascertained or determined? By following upward in the reverse direction of its downward course until we come to the place where it terminates in its upward course, whether that be at or beneath the surface. There we have the top of the vein, have we not, whatever form or whatever shape that top may present to the eye?

We go a step further. We will suppose that of the intervening or middle 1500-foot section upon which Jones' location has been laid, throughout the westerly 750 feet thereof, the two veins are found at the surface with separate tops or apices; while throughout the easterly half of the 1500 feet the two have united or formed a junction giving the appearance of but one vein at the top or summit in the form of a crest. Jones would then have the right to follow both of these veins indefinitely to the deep on the westerly half of his location because they there had separate tops or apices, but under the same location, covering part of the same mineral deposit, part of the same two veins, he would, under appellant's contention, have no extralateral rights whatever on

either one of these veins in the easterly half of his location.

The contention goes too far. It leads to results which it is manifest could not have been within the contemplation of Congress.

We have extralateral rights upon the two, if they are found at the surface as separate and distinct veins dipping in opposite directions, but if, unfortunately for the locator, they form a juncture in their upward course so that at the top or summit the ores of the two are intermingled, it is asserted that we can have no extralateral right upon either one of them. Why? What beneficial purpose is subserved by any such irrational interpretation of the language of the statute as that would be? Who is injured if we are given the right to follow extralaterally each of these contra-dipping veins throughout its entire depth between the legal end line planes of our claim? No one else can lay a valid location upon either one of them, and it is possible that the owner of the claim which covers the top or summit of both of them shall not be permitted to follow either one of them or both of them? Would not the contention of plaintiff, if it received the sanction of the courts, have an inevitable tendency to check and retard the development of the mineral wealth of the state?

In the case of *Stevens* vs. *Williams*, 23 Fed. Cases (Case No. 13414), the court says:

> "• • • we have now to consider the question which was so much discussed by counsel, as

to the location with reference to the top and apex of the vein. And upon that point it is clear, from an examination of the act, that it was framed upon the hypothesis that all lodes and veins occupy a position more or less vertical in the earth, that is, that they stand upon their edge in the body of the mountain; and these words, 'top' and 'apex,' refer to the part which comes nearest to the surface. The words used are 'top' and 'apex,' as if the writer was somewhat doubtful as to which word would best describe or best convey the idea which he had in his mind. It was with reference to that part of the lode which comes nearest to the surface that this description was used; probably the words were not before known in mining industry,—at least, they are not met with elsewhere, so far as I am informed. Perhaps they were not the best that could have been used to describe the manner in which the lode should be taken and located. But, whether that be true or not, they are in the Act of Congress, and there seems to be little doubt as to their meaning; they are not at all ambiguous. In some instances they may, perhaps, refer to the *floe* of the lode; that is, a part of the lode which has been detached from the body of mineral in the crevice, and flowed down on the surface; in others, where there is no such outcrop, they may mean that part which stands in the solid rock, although below a considerable body of the superficial mass which I have attempted to describe to you. We are all agreed, however, (the courts and counsel, every one), that that is the meaning of the words; that they are to be taken in some such sense as that,—as being the part of the lode which comes nearest the surface; and the act requires that the location shall be along the line of this top or apex."

In *Duggan* vs. *Davey* (Dak.), 26 N. W. 887, (cited and justly commended at page 20 of plaintiff's brief), the court, at page 901, speaking of the definition of top or apex, as given by one of the geologists, says:

> "The definition given is no doubt correct under most circumstances, but, like many other definitions, is found to lack fullness and accuracy in special cases, and I do not think important questions of law are to be determined by a slavish adherence to this letter of an arbitrary definition. It is, indeed, difficult to see how any serious question could have arisen as to the practical meaning of the terms 'top' or 'apex,' but it seems in fact to have become somewhat clouded. I apprehend if any intelligent person were asked to point out the top or apex of a house, a spire, a tree or hill, he would have no difficulty in doing so, and I do not see why the same common sense should not be applied to a vein or lode. Statutory words are to receive their ordinary interpretation, except where shown to have a special meaning, and as I think the testimony shows that these terms were unknown to miners in their application to veins before the statute, the ordinary rules would seem to apply to them."

Why deny to the discoverer of a vein or lode which is in the form of a *single* anticlinal fold, who has laid a valid location thereon covering the entire width of its crest from end to end, who has spent his time, labor and money in the hope of developing something of worth, and after long exploration and much expense has succeeded in developing a valuable mine, all extralateral right because the summit of his vein was not found as a terminal edge? And in whose favor is he to be denied

such right? The southerly limb or side of his vein on its dip or downward course passes beyond the side line of his claim, we will say, within a few hundred feet from the crest. Shall the balance thereof in its downward course be awarded to the owner of the adjoining claim who was a stranger to the discovery of the vein, and who could not have based a valid location upon it? Would such a rule or doctrine as that have a tendency to encourage citizens to search for and develop the mineral wealth of the nation?

The time spent by the prospector in the search for precious metal mines does most often prove to be time lost; and the expenditure in mining operations of large sums of money in the hope or upon the faith of developing anything of value does, in the vast majority of cases, prove to be money thrown away. In number, the prizes won are insignificant as compared with the blanks drawn. If, then, he who has been fortunate enough to have discovered a lode or vein of real worth and has, by the expenditure of large sums, developed the wealth thereof, is not by the courts secured in the enjoyment of all the fruits of his enterprise so far as this may be done without trenching upon the spirit of the law, the inevitable result must be discouragement to the intelligent prospector and to the enterprising investor, thus retarding, instead of promoting, the development of the nation's mineral resources.

One who, by his labor and enterprise, brings into circulation the hidden treasures of the earth is entitled

to his reward. The wealth which he thus acquires injures no one, but on the contrary it promotes the prosperity of all.

In *2 Lindley,* Section 335, the author says:

> "The discoverer in all ages and all countries has been regarded as conferring rights or claims to reward. Gamboa, who represented the general thought of his age on this subject, was of the opinion that the discoverer of mines was even more worthy of reward than the inventor of a useful art. Hence, in the mining laws of all civilized countries the great consideration for granting mines to individuals is *discovery.* 'Reward so bestowed,' says Gamboa, 'besides being a proper return for the labor and anxiety of the discoverers, have the further effect of stimulating others to search for veins and mines on which the general prosperity of the state depends.'"

This passage is quoted with approval by this court in the case of *Lawson* vs. *United States Mining Company* (207 U. S. 1), and after quoting, the Court says:

> "The two thoughts here presented are reward for the time and labor spent in making the discovery, thus adding to the general wealth, and an incentive to others to prosecute searches for veins and mines. To take from the discoverer a portion of that which he has discovered, and give it to one who may have been led to make an adjoining location by a knowledge of the discovery, and without any previous searching for minerals, is manifest injustice."

Again in *3 Lindley,* Section 866 (at page 2170), the author in treating of the burden of proof resting upon

one who seeks to pursue his vein extralaterally beneath the surface of his neighbor's territory, says:

> "He is certainly entitled to the benefit of all presumptions of fact which logically flow, in common mining experience, from other facts which may be proved. *Nor are questions of doubtful construction of the mining laws to be resolved against him.*" (Italics ours.)

The law is to be applied to the facts found in a given case. And in arriving at a conclusion the court should look to the results that are liable to flow from its decision and put that interpretation upon the act, if it be susceptible of such, as will not defeat the main purpose and policy of Congress, which was to encourage the search for metals and the development of the wealth of the country. Nothing, we submit, but imperious necessity from which there was no escape, would justify the court in upholding the contention of appellant.

In plaintiff's brief no case is cited, and we say with entire confidence that none can be found, in which any court has heretofore been called upon to consider or determine what the top or apex of a vein having the form of a single anticlinal fold would be within the meaning of the law. No such question was presented in the case of *Duggan* vs. *Davey,* 4 Dakota 110, cited by our opponents. In that case two edges or outcrops of the vein were exposed, one along the western face of Custer Hill traversing it in a northerly and southerly direction, and the other traversing the northern slope of the hill in an easterly and westerly direction. The plaintiff con-

tended that the edge or outcrop exposed on the western slope was the top or apex of the vein; while defendant contended that the edge or outcrop exposed on the northern slope was the true top or apex of the vein. The court held with the plaintiff and determined that the outcrop shown on the northern slope of the hill was merely an exposure of the edges of the vein on the line of its dip—a side-edge.

Counsel for plaintiff, at pages 21 and 22 of their brief, cite and quote from the case of *Illinois Silver M. Co.* vs. *Raff*, in support of their contention.

But in that case the court was not called upon to consider what the top or apex of a vein in the form of a single anticlinal fold would be. That the facts or the conditions with which the court had to deal in that case bore no similarity to those involved in the case at bar, is apparent from the following excerpt taken from the opinion of Fall, Judge, speaking for the majority, 34 Pac. Rep., pp. 544, 545:

> "* * * The contention of plaintiffs is that, in taking ore from the ground of the Calamity, they followed a vein having its apex within the side lines of the Illinois, on its dip, under the east side line of the last mentioned claim, into the Calamity ground; that this vein consisted of different shoots, veins, gashes, pockets, or bodies of ore, occurring in lime, or in the contact between lime and shale, all connected by stringers or otherwise, forming a continuous contact vein with its apex on the Illinois,—a shale hanging wall and blue lime foot wall, and ore in the different pockets or places, when found, while of different values,

of practically the same characteristics. The defendants contend that, within the meaning of the law, there is no vein either upon the Illinois or Calamity; that the ore occurs in an immense lode or mineral-bearing lime zone; that the ore, whether deposited in the pockets, gashes, pipes, or other forms, by infiltration, sublimation, or otherwise, was so deposited without reference to the shale or hanging wall; that the entire body of lime, practically, is mineralized, or at least that deposits of mineral of the same character are found from the surface of the lime, whether overlaid by shale or exposed to the air, down to the lowest depths at which work has been done; that there is no apex upon the Illinois claim; that the so-called apex is a point upon the lime mineral lode or zone whence the shale has been eroded upon the throwing up, in a rolling form, of said lime zone; that said bare spot extends westward across the side line of the Illinois, and on to the adjoining property; * * * defendants, further contend that, if it is conceded that the Illinois and Calamity are located upon a vein of mineral, then the apex of that vein is to the north of both, and upon the Andy Johnson and Brush Heap mines."

And at pp. 545-546:

"It would be the height of foolishness for a court in New Mexico, with our mineral-bearing lime formation extending with the different mountain ranges from Colorado to Old Mexico, to say that mineral cannot be found in lime at a thousand feet depth or on the surface, with a cap of slate or a contact of porphyry. One of these lime belts, zones, or masses may be mineral-bearing throughout its length and breadth in one certain locality or in various places, and the body, mass, or zone bearing the mineral dip into the earth on all sides under mountains of granite, with no apex to the

vein or mass distinguishable to the naked eye, or discoverable by the ingenuity of the prospector. The zone or mass may follow the undulations of a broken country down into the valley, and rising over the divides, cutting through, covered by, or overlapping other formations; but until it is broken, and the edge exposed or some edge *or end* as a beginning point found, from which it can be followed down at some angle below the horizontal, there is no apex from which it can be followed beyond the side lines of a claim located upon it. * * *"

The vein involved in the case of *Stewart Mining Company* vs. *Ontario Mining Company*, 237 U. S., p. 350, cited by appellant, had a northerly and southerly course and terminated abruptly against a fault of great magnitude (the fault being several miles in width, as appears from a decision in the same case by the Supreme Court of Idaho, 132 Pac. 787-791). There was an edge of the vein exposed in its downward course along the side or plane of the fault. The plaintiff claimed that this edge was the top or apex of the vein, while the defendant insisted that it was not the top, but the *end-edge* or *side-edge* of the vein in its downward course. The trial court held with the defendant, the decision was affirmed by the Supreme Court of the State and by the Supreme Court of the United States. No other question was involved in the case.

The form or shape of the vein or lode with which the court was dealing in the case of *Stevens* vs. *Williams*, cited and quoted from in plaintiff's brief at pages 22 and 23, bore no resemblance to the vein or lode here involved.

The Leadville vein or lode was a contact vein having blue limestone for its foot wall and white porphyry for its hanging wall. This contact vein had a downward course generally at a low angle from the horizontal. Of course the top or apex of the vein would be ascertained and determined by following the vein upward in a direction the reverse of that of its downward course until it reached the surface or, if it did not outcrop, where it ceased and terminated in its upward course. It also appeared that that vein in its downward course was undulating, there being a series of anticlinal and synclinal rolls in it. No one, of course, would contend that the top of any one of these rolls was the top or apex of the vein. (Nor would any one contend that the top or summit of any one of the anticlinal rolls depicted in figure 9, found at page 26, of plaintiff's brief, was the top or apex of the vein.) The defendant in the *Stevens* case contended that the plaintiff's location was laid upon not the top or apex of the vein, but covered one of such rolls. These were the conditions, the facts, with which the learned Justice had to deal; these were the facts respecting which he desired to enlighten the jury, as to what was meant by the top or apex of a vein. And at pp. 574-5, Mr. Justice Miller says:

> "The next point is, that it is denied that there is a top or apex to this ledge or vein, and that if there is such a one it is not within the side lines of the plaintiff's patent. Perhaps upon that point the defendants have mainly rested their case. I think that you will agree with me, as all the counsell agree and all the witnesses agree substantially, conceding that there is a vein, that the top or the

apex of a vein, within the meaning of the Act of Congress, is the highest point of that vein where it approaches nearest to the surface of the earth, and where it is broken on its edge so as to appear to be the beginning or end of the vein. The word 'outcrop' has been used in connection with it, and in the true definition of the word outcrop, as it concerns a vein, is probably an essential part of the definition of its apex or top; but that does not mean the strict use of the word 'outcrop.' That would not, perhaps, imply the presentation of the mineral to the naked eye, on the surface of the earth, but it means that it comes so near to the surface of the earth that it is found easily by digging for it, or it is the point at which the vein is nearest to the surface of the earth; it means the nearest point at which it is found toward the surface of the earth. And where it ceases to continue in the direction of the surface, is the top or apex of that vein. It is said in this case that the point claimed to be the top or apex is not such, because at the points where plaintiff shows or attempts to prove an interruption of that vein, in its ascent toward the surface and what he calls the beginning of it, the defendants say, that is only a wave or roll in the general shoot of the metal, and that from that point it turns over and pursues its course downward, as a part of the same vein, in a westerly or southwesterly direction. It is proper, I should say to you, if the defendants' hypothesis be true, if that point which the plaintiff calls the *highest point, the apex,* is merely a swell in the mineral matter, and that it turns over and goes on down in a declination to the west, that it is not a true apex within the statute. *It does not mean merely the highest point in a continuous succession of rolls or waves in the elevation and depression of the mineral nearly horizontal."* (Italics ours.)

In *1st Lindley on Mines*, Section 300, at page 670, the author, after quoting from a report of Professor Emmons descriptive of this Leadville deposit, says:

> "A glance at the geological atlas accompanying this monograph shows that in many portions of this mineral belt these deposits lie in a position approaching the horizontal, sometimes forming a basin, at others alternating in anticlinal and synclinal folds. * * *"

Our understanding is that that vein or lode with its footwall of blue limestone and hanging wall of white porphyry continued in its general upward course until it was found outcropping at the surface or at the top of bed rock immediately beneath the debris of the hillside.

In the United States Geological Survey (J. W. Powell, Director, Second Annual Report, 1880-1881) is found a report on the geology and mining industry of Leadville, Colorado, by S. F. Emmons, in which, at page 209 (of this volume), he states that:

> "In 1875 * * * the claims which now belong to the Iron Silver Mining Company, covering, with remarkable accuracy * * * the *croppings* of the ore bearing stratum over a distance of more than a mile."

And at page 257 (speaking of the Iron Hill Mines), he says:

> "The average strike of the formation in this vicinity is a little west of north and the beds dip to the eastward at an angle of about 12 degrees at the outcrop, which shallows to 7 degrees and even less at the summit of the hill."

And at page 259 it is said:

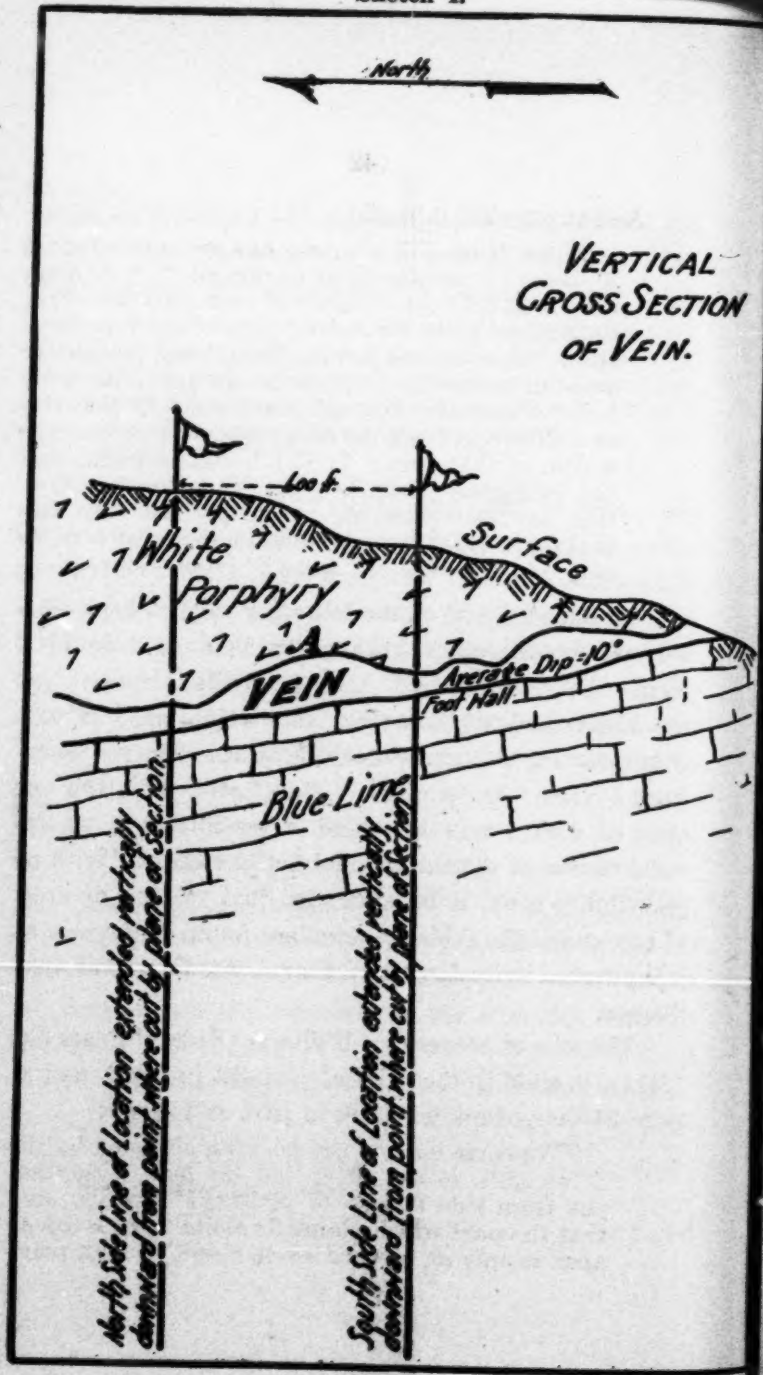
> "*Iron Mine.*—This group has an area of about 25 acres of underground workings. * * * They have been driven a distance of over 1500 feet along the contact from the *outcropping* of the blue limestone. Here the contact has been found productive over an unusually large area, the main ore body being diagonally through the claims in a northeast direction from the *croppings* with an average width of 200 feet. * * * It is found that the limestone, while keeping its general inclination to the eastward, is compressed into lateral folds which have produced a series of *troughs and ridges within the mass.*" (Italics ours.)

On Sketch No. 4, on the following page, is depicted a vertical cross-section through a vein or lode in a form characteristic of the Leadville deposit (as we understand it), showing the vein and its undulations in its general or average course downward from the surface. Manifestly the top or apex of such a vein is where it terminates in its upward course at the surface and not elsewhere. With no plausibility could it be contended that the top or crest of any one of the folds or anticlines found in the vein as it is pursued in its downward course, was the top or apex thereof.

The case of *Stevens* vs. *Williams* (Federal Cases No. 13414), is cited in the brief of plaintiff in error, and at page 24 thereof quoted from in part as follows:

> "We come next to the position assumed by the defendants, to the effect that the lode is continuous from side to side of plaintiffs' location, and that the part which plaintiffs claim to be a top or apex is only an upward swell, ridge, or high point

Sketch 4.


North
VERTICAL
GROSS SECTION
OF VEIN.
100 ft.
White
Porphyry
Surface
VEIN
Average Dip=10°
Foot Wall
Blue Lime
North Side Line of Location extended vertically downward from point where cut by plane of Section
South Side Line of Location extended vertically downward from point where cut by plane of Section

in the vein from which it descends in both directions.

"And if it is continuous, as suggested—that is to say, if coming in at one side it passes unbroken to the other—the plaintiff cannot follow it beyond the lines of his location. * * * And no location can be made on the middle part of a lode, or otherwise than at the top or apex, which will enable the locator to go beyond his line."

That case is another of the so-called Leadville cases and we freely subscribe to what is said by the court in the passage quoted.

Referring again to Sketch 4, it will be seen that the north and south side lines of a location laid upon the middle part of the vein are shown, extended downward vertically from the points where cut by the plane of section. The vein as there shown does, as it is followed in its downward course from its top or apex at the surface, enter the south side line of the location and then continuing rises upward to the point marked "A," whence it continues unbroken downward to and across the north side line. We do not, nor could we contend, nor could anyone, that the point marked "A" at the summit of this upward roll is the top or apex of such a vein.

How widely different from the Leadville lode or deposit, is the vein or are the veins found in the West End claim. *First,* they are fissure veins, all of the ore bodies lying in and along a fissure, the onward and downward course of all the ore bodies being conformable to the onward, as well as downward, course of the fissures. (See testimony of *Chandler,* Tr. Vol. 1, pp. 130,

131; *Wiley*, Vol. I, pp. 84-5; *Bradley*, Vol. I, pp. 192-3; *Hoxey*, Vol. I, pp. 28-9; and *Finch*, witness for plaintiff, on cross-examination, pp. 336-338.) *Second*, instead of having an undulating vein with a succession of rolls anticlinal and synclinal, as in the Leadville cases, the vein or the veins in the West End claim are free from any such irregularities or convolutions, the downward course of the north dipping side or limb and that of the south dipping limb being regular and substantially uniform throughout. This is shown by the evidence, with little or no conflict, and the court, in its fourth finding of fact, says:

> "* * * that the dip or downward course of both the northerly and southerly dipping sides or limbs of the vein where the two are found in conjunction, as aforesaid, and also in the places where each, as aforesaid, has its separate and independent top or apex, is regular and practically free from undulations; that the said southerly dipping limb or side of the vein in the easterly portion of the West End claim * * * has been developed from the top or summit * * * to and beyond the southerly side line of said claim, or for a distance, measured on the slope * * * of 800 feet or thereabouts, the average dip there being 17 degrees from the horizontal; that the westerly portion * * * of said southerly dipping limb * * * in the West End claim, has been developed from its top to and beyond the southerly side line of said claim, or for a distance, measured on its slope * * * of 1000 feet or thereabouts, the average dip there being 30 degrees from the horizontal; that the average dip of said northerly dipping limb or side of said vein, so far as the same has been developed in its downward

course, is 17 degrees from the horizontal; that said vein is a fissure vein." (Tr. Vol. II, p. 681.)

(The correctness of the finding as here quoted is not challenged by any assignment of error, and yet in the brief of plaintiff in error the vein is repeatedly referred to as a "flat vein" or a "blanket vein." Clearly it cannot be so characterized. There could be no extralateral right, of course, on a flat vein—a vein in a horizontal position—for such a vein would have no downward course.)

That the propositions thus far discussed received the thoughtful consideration of the Supreme Court of Nevada is shown by the elaborate and lucid treatment thereof in its opinion, Tr. Vol. II, pp. 693-702, to which opinion we invite especial attention.

But, if it were possible to conclude that within the meaning of the Act the word "top" or "apex" necessarily implies a "terminal edge," the case of plaintiff-in-error would thereby be aided not at all, for by the findings of fact made by the trial court—not only amply sustained by the evidence, but unchallenged—the upward termination of the vein, if there be but one, or of each of them, if there be two, is in truth found in the form, shape or likeness of a terminal edge.

Throughout the trial, the contention of the defendant was that instead of there being within the West End claim but one vein in the form of a single anticline, there were two fissure veins, the top or downward course of one being southerly, and the other northely; that the southerly dipping vein was the older of the two, that the later or northerly dipping vein in its upward course

intersected the southerly dipping vein and continued in its upward course beyond the plane of intersection to what then was the surface; that long after the creation of both these veins there was an outpouring of lava locally called "midway andesite" and frequently referred to by the witnesses as the "cap rock," which flowed over the old surface, burying the veins throughout to a considerable depth and in places to a depth of several hundred feet; that during the period intervening between the creation of the veins and the overflow of lava, the old surface had been largely and irregularly eroded (see testimony of *Winchell,* one of the witnesses for defendant, Tr. Vol. I, pp. 220-232); that during the long period elapsing since the midway andesite flow, it in turn has been greatly eroded; that each of these veins at its top crosses the easterly end line of the West End claim. That the northerly dipping vein on its course thence westerly and at its top crosses the northerly side line of the claim at a point about 1120 feet westerly from its northeast corner, measured along the north side line (*Winchell,* p. 230), while the southerly dipping vein on its course westerly crosses the northerly side line at a point 1142½ feet westerly of the northeast corner, measured along the north side line of the claim.

Professor Lawson, witness for plaintiff, agrees with defendant as to the sequence of geologic events after the formation of the vein or veins and testifies as follows:

> "That fissure and the mineralization of the fissure to form the West End MacNamara vein was

completed long before the appearance in this region of what is known as the Midway andesite. And the measure of that time between the formation of this vein and the appearance of the Midway andesite is in terms of erosion. * * * But it is also a well known principle in geology that we can also take some account of very large intervals of geological time by noting what has happened, not in the way of a deposition, but in the way of erosion; the extent and the amount of degradation of the earth's surface by the attack of rain and frost and the atmosphere generally, running water, all those things tend continually to reduce the inequalities of the earth's surface, to reduce them to the lower levels, carry away the waste, and so lower the surface. And if we note the extent of this erosion, then we form some idea, at least, of the interval of time which was necessary for that erosion to be completed to the extent that we can observe.

Now, that erosion so far as that in this region about Tonopah is concerned, has proceeded so far that fissures—the veins that existed in the region were exposed at the surface as outcrops, and when the Midway andesite was poured out over this surface as a lava flow, it buried the surface, and of course it buried also the outcrops of many valuable veins. * * *

After the accumulation of the Midway andesite, this region was subjected to a still further process of erosion. Another time interval was introduced, and during that time interval a large part of the Midway andesite was removed, and part of the old surface which was buried was resurrected by the removal of the cover, and that again was a long period of time." (Tr. Vol. II, pp. 564-5.)

The defendant, pending the litigation, to support its contention, caused a number of raises, so-called, to be

driven on the upward continuation of the northerly dipping vein above the plane of intersection of the two (or above what plaintiff claims to be the crest of a single anticlinal vein). These raises are shown upon defendant's model, Exhibit "A," and are thereon designated as raises 488, 466, A-1, A-2, A-4, A-5, A-6, A-7 and A. According to the testimony of defendant's witnesses, each of these raises followed the upward continuation of the northerly dipping vein to cap rock, or nearly so, and each disclosed throughout its length quartz and ore.

Mr. *Bradley,* witness for defendant, respecting these raises, testifies as follows:

> "488 raise is a raise driven in what I call the north vein quartz, following the hanging wall of the north vein for a distance of sixty feet. The hanging wall is easily traced through the entire course of the vein, and the quartz is of varying width, from three feet to about one and one-half feet in the face. * * * It is quartz in place as distinguished from drag ore. * * * Raise 461 is approximately 37 feet long, and it starts out of 461 drift, a hanging wall drift on the north vein, following the hanging wall on the north vein on the 496 to the intersection with the 411 east drift. The raise goes up from that level. It is in quartz all the way up, and the hanging wall is disclosed throughout the entire distance. There are values in that raise. The values are observable to the eye. 2-A raise is 120 feet in length. It starts from a stope and continues up over the hanging wall of what is called the south-dipping vein; all in continuous quartz for a distance of 85 feet. There is also good ore in this raise in places, one 45 feet up the raise, and the other 59 feet, carrying values observable to the eye. 4-A

raise is 63 feet in length. It is also driven in continuous quartz with no interruption and the hanging wall plainly visible throughout the raise. More than a foot of quartz in the face of the raise. The greatest thickness of quartz that I encountered in that raise is 4½ feet. 5-A raise also follows the hanging wall and the quartz in the north vein, driven for a distance of 137 feet, which shows continuous quartz for a width of from two to five and one-half feet, for a distance of 75 feet, where it is cut off by a porphyry wall. 6-A is also a raise on the north vein and has a height of approximately 23 feet. The same conditions obtain in this as in 5-A, 4-A and 2-A; quartz all the way up. 7-A is also a raise driven on a continuation of the north vein; it is very misleading,—the quartz varies. In some places it is hardly traceable at all; approximately fourteen feet from the end of the raise I saw no quartz at all. From there down to the bottom you have more or less quartz, although it is interrupted. It is hard to determine it; it is not as continuous, interrupted by slips and breaks and things that I don't know anything about. * * * But what there is has a north dip." * * *

Q. And in 366 raise, the one there in yellow on the model. State to the court what you find there, as to dip and material?

A. I find a north-dipping quartz following up to cap rock; it is cut off in its rise against the cap, and it is the same character as this quartz back here, being what is called the north-dipping vein.

Q. What are you pointing to?

A. Back here on the north-dipping vein.

Q. You are back to the stopes?

A. Yes.

Q. Now, did you observe this little piece of work that I now point to with my finger, colored in yellow and extended in red up to 466 raise?

A. Yes, I did.

Q. Is that run on the hanging wall, or is it simply a piece of work in the north-dipping vein?

A. Well, it is a continuation of a raise—302 raise, from a drift on the south vein, showing south-dipping quartz, and the raise shows the porphyry hanging wall for thirty feet, and is concealed by a scab of quartz, and is then exposed forty feet up the raise by a vertical raise exposing the porphyry hanging wall again. The porphyry hanging wall terminates against the north-dipping quartz, about eighty or eighty-two feet up the raise. The hanging wall of the north vein is exposed at the end of this 302 raise, and the quartz in the 366 raise is quartz in place, a large body in place. In the A raise we find a strong vein of quartz, not so much at the commencement of the raise, but obtaining an average width of three feet throughout the rest of the raise. It is two feet at the top. The north-dipping quartz follows the north-dipping hanging wall from the McNamara stope up through the A-raise. (Tr. Vol. I, pp. 181-184.)

To like effect, respecting these raises, is the testimony of *Chandler*, Tr. Vol. I, pp. 125-6, 127-9; *Jussen*, pp. 102-4; *Wiley*, pp. 38-42, and *Hoxey*, pp. 202-205.

(Raise 488, as shown on the model, is at or near the easterly end line of the West End claim, and raises 1-A, 2-A, 4-A, 5-A, 6-A and 7-A are found at intervals westerly therefrom, the last being about 350 feet westerly of said east end line, while the "A" raise is slightly beyond the point where the south dipping vein crosses the northerly side line of the claim 1142½ feet westerly from its northeast corner.)

Throughout the next 350 or 400 feet westerly from the 7-A raise, there has been little development work done. What is called the "Edward's fault" crosses through that region. But the situation there is depicted, as well as circumstances will permit, by competent experts. Mr. *Wiley*, pages 80-81, states that in his opinion, through that section it would be impossible to bring the top of the two limbs together; that owing to erosion the north and south dipping veins would not there come together, but that for that distance each would be found having a separate top or apex. See also, testimony of Mr. *Winchell*, Tr. Vol. I, pp. 220-227.

Mr. *Richardson* testifies that the red color on plaintiff's model, Exhibit "A," was intended to represent the south dipping vein, the yellow the north dipping vein, the very dark brown rhyolite, the purple trachyte; that the light green represents andesite-cap, and the dark green Brougher dacite-cap.

Now, an inspection of that model will show that for a distance of 350 feet, or more westerly, from the 7-A raise, the andesite-cap rock is found at so low an elevation as to make it impossible for the two veins to there unite in their upward course unless the dip of each was radically changed. A short distance westerly of this undeveloped area raises 302 and 366 are found, and here for a short distance in an easterly and westerly direction, to-wit, 40 feet, or such a matter, the two veins are again found intersecting or uniting, and there again, as we have seen, the north dipping vein is found to extend

upward above the top of the south dipping vein; and westerly therefrom the two are not again found intersecting or in conjunction in their upward course until we get to the said "A" raise just beyond the northerly side line of the claim.

Now, if we look to the specific findings of fact made by the trial court, it will be found that defendant's contention was by the Court in substance approved and its evidence in support thereof accepted by the Court as truly descriptive of the existing conditions as revealed by the workings.

(At page 29 of plaintiff's brief, the following quotation is made from the trial court's opinion, namely:

> "The all-important contention of fact is whether the body of quartz, ore, etc., or the bodies of quartz, ore, etc., in the controversy constitute one vein or two. The evidence easily preponderates that it, or they, form but one vein."

But the sentence immediately following this in the opinion is:

> "But, though thus found, to be one vein, this conclusion is not at all what might be called an absolute one, but is qualified, as will further appear in this discussion.")

In the fourth finding of fact, Tr. Vol. II, commencing at page 648, it is first stated that there is a vein which at its top or apex and on its course crosses the easterly end line of the West End claim and thence at its top or apex and on its course continues westerly in said claim between the side lines thereof to a point on

the northerly side line 1142½ feet from the northeast corner of said claim, measured along the northerly side line thereof, at which point said vein at its top or apex and on its course departs from said mining claim, crossing said northerly side line. That said vein dips southerly, and in its downward course so far departs from the perpendicular as to pass beyond the southerly side line of said West End mining claim, extended downward vertically, and thence into and beneath the surface of the said Eureka and Curtis lode mining claims of the plaintiff company.

And proceeding, the Court, at pages 649-651, says:

"The said vein is more particularly described as follows:

The said vein does not on its upward course, or at its top or apex, outcrop or reach the present surface, but is covered or buried to a considerable depth by lava, locally known as and called 'Midway' andesite, which, after the formation of the vein, flowed over the then surface of the territory in which the vein exists; that at and for a distance of 360 feet westerly from where said vein or lode crosses the easterly end line of said West End claim, which crossing is at a distance of 135 feet northerly from the southeast corner of said West End claim, there is a juncture or union between two limbs or sides of said vein, and from the summit of said juncture or union the downward course of one limb or side thereof is in a northerly direction, and the downward course of the other limb or side thereof is in a southerly direction; *that there is a continuation upward from the summit of said juncture or union of said northerly and southerly dipping limbs or sides of said vein, of ore and silver-bearing quartz or rock*

in place for a distance of from 20 or 30 to more than 100 feet, and to what was the surface before the same was buried beneath the said lava flow; that such ore and silver-bearing quartz were deposited where the same are now found and at the same time and during the same period that the main vein below was created, and from mineral-bearing solutions having the same source; that the dip is fairly conformable and strike or course of such upward continuation of ore and silver-bearing quartz is conformable to the dip and strike or course of said northerly-dipping limb or side of said vein from the summit of said juncture downward, and the Court finds that said upward continuation is a part of said vein or lode; that thence westerly, and for a distance of 360 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein do not unite or form a union or juncture in their upward course, *but for that distance each of said limbs or sides has a separate and independent top or apex;* that thence westerly, for a distance of 40 feet, the northerly and southerly dipping limbs, sides, or slopes of said vein are again found in conjunction, as in the said most easterly 360 feet; *that thence westerly, and until said northerly and southerly dipping limbs, sides, or slopes of said vein intersect with and cross said northerly side line of said mining claim, they do not unite or form a union or juncture in their upward course, but for that distance each of said limbs or sides has a separate and independent top or apex;* that between said distance of 40 feet, where said northerly and southerly dipping limbs, sides, or slopes of said vein, as aforesaid, unite or form a union or juncture in their course upward, and said points on said northerly side line of said mining claim where, as aforesaid, said contra-dipping limbs, sides or slopes of said vein respectively intersect said side line and cross the same and so depart from said

mining claim, there are two points at which it appears that said contra-dipping limbs, sides or slopes of said vein on their upward course approach closely to a juncture or union, but as to said contra-dipping limbs, sides, or slopes of said vein at said two points actually forming a juncture or union on their upward course, the evidence is meager and unsatisfactory; that the point where the said northerly dipping limb or side of said vein departs from the said mining claim through the northerly side line thereof is 1120 feet westerly from the northeast corner of said claim measured along the northerly side line thereof; that the point where said southerly dipping limb or side of said vein departs from said mining claim through the northerly side line thereof is 1142½ feet westerly from the northeast corner of said claim measured along the northerly side line thereof; *that throughout said distance of 40 feet, where the contra-dipping limbs or sides of said vein are found in conjunction, as hereinbefore stated, there is a continuation upward from the summit of the juncture or union of said two limbs or sides of said vein of ore or vein quartz to what was the surface before the same was covered by the lava flow* * * *; that said vein is a fissure vein; that there is a difference in the strikes or courses of said northerly and southerly dipping limbs of said vein of about 40 degrees; that at said places and throughout said distances, where said contra-dipping limbs of said vein are found to intersect and form a juncture, as aforesaid, there has been a mingling of the mineralizations of said two limbs; that at such places and throughout said distances the footwall of said two limbs of said vein, within the angle beneath their said juncture, by the process of replacement has been converted into mineralized quartz for considerable distances below said junc-

ture, said replacement quartz extending from limb to limb.

That the shaft known as the McQuillan shaft was the discovery shaft of the West End mining claim; that said discovery shaft encountered and disclosed no vein or lode of mineral-bearing rock in place until, in its downward course, it cut and disclosed said northerly dipping limb or part of said vein; that said northerly dipping limb of said vein was cut and disclosed in said discovery shaft on the 3rd day of April, 1903." (Italics, of course, are ours.)

(These findings are substantially in accord with what is found in the court's opinion, pages 636 et seq.)

According to this finding it will be observed that for 742 feet of the 1142½ feet in length of the vein or veins covered by the West End claim, there is found today two veins, one dipping northerly and the other southerly, and each having an independent top or apex in the shape or form of a terminal edge, and that as to the balance of the said 1142½ feet—360 feet in one place and 40 in another —where—whether as a result of an intersection in the upward course of two separate and distinct veins, or as a union or juncture of the opposite dipping limbs of one and the same vein—the northerly dipping vein or northerly dipping limb continues upward from 20 or 30 feet to more than 100 feet to a terminal edge, above the plane of intersection or above what plaintiffs contend is the crest of a single anticlinal vein; that the ore and silver-bearing quartz found in this upward continuation were deposited at the same time that the main vein below was created and

from mineral-bearing solutions having the same source; that the dip and strike of such upward continuation of ore and silver-bearing quartz are conformable to the dip and strike of the northerly dipping vein or the northerly dipping limb or side, and was one and the same vein from the summit of said juncture downward, and that such *upward continuation is a part of said vein or lode.*

Let us suppose, if the Court please, that on April 3rd, 1903—when our discovery was made—the cap rock had been so far eroded as to expose the ore or quartz found at the top of some of these raises, we will say, the "4-A," "5-A" or "2-A"; and the prospector, having discovered one of these exposures, made a location based thereon, posting his notice at such discovery point, and laying his claim thereon, just as the West End was laid; that in prosecuting his work of development he followed down either one of these raises on continuous ore, quartz and vein material to its bottom and there encountered the larger ore bodies found in the north dipping vein, continuing thence downward in the same direction and at the same angle of dip as that of the ore and quartz which were found in the raise or raises. Could it be successfully contended that his location was invalid for lack of a discovery of a vein or rock in place bearing silver or other metals? Could it be successfully contended that such discovery was not on or at the top or apex of the veins? It would seem that any such contention would be swept aside as being without merit. And if there were found at the bottom of the raise the juncture of two veins dipping in opposite directions or if from thence down-

ward there was but one vein in the form of a single anticlinal fold, would not the locator have the right to follow both veins or both limbs or sides extralaterally throughout their entire depth between the legal end lines of his claim? (We here put aside the claim of appellant that one cannot have extralateral rights upon a vein or veins dipping in opposite directions, as we have heretofore answered that contention.)

III.

A further contention of plaintiff is: That the westerly end line or boundary line of the West End claim, being not a straight, but a broken line, the owner of that claim must be denied any extralateral right whatever upon any vein the top or apex of which is found within the surface lines thereof extended downward vertically, and this notwithstanding the fact that there is not found within the claim any vein or lode which crosses that line or which does not in its course westerly depart from the claim over the northerly side line thereof several hundred feet before this westerly boundary is reached.

(A true description of the West End claim is contained in the Answer [Tr. Vol. II, page 661], and is as follows:

"Beginning at Corner No. 1 (southeast corner)

* * *

"Thence, first course, south 74° 42′ west 750 feet to Corner No. 2; 1406.8 feet to Corner No. 3 (southwest corner).

"Thence, second course, north 11° 20′ west 301 feet to Corner No. 4;

"Thence, third course, north 5° 31′ east 313.3 feet to Corner No. 5 (northwest corner);

"Thence, fourth course, north 74° 6′ east 749.9 feet to Corner No. 6;

"Thence, fifth course, north 74° 42′ east 608 feet to Corner No. 7;

"Thence, sixth course, south 83° 58′ east 134.5 feet to Corner No. 8 (northeast corner);

"Thence, seventh course, south 5° 31′ west * * * 590.7 feet to Corner No. 1, the place of beginning."

It will be noted that the easterly end line and the northerly 313.3 feet of the westerly end or boundary of the claim are parallel, while the southerly 301 feet of the westerly end line or boundary though not parallel to, inclines in its course southerly toward the easterly end line of the claim.")

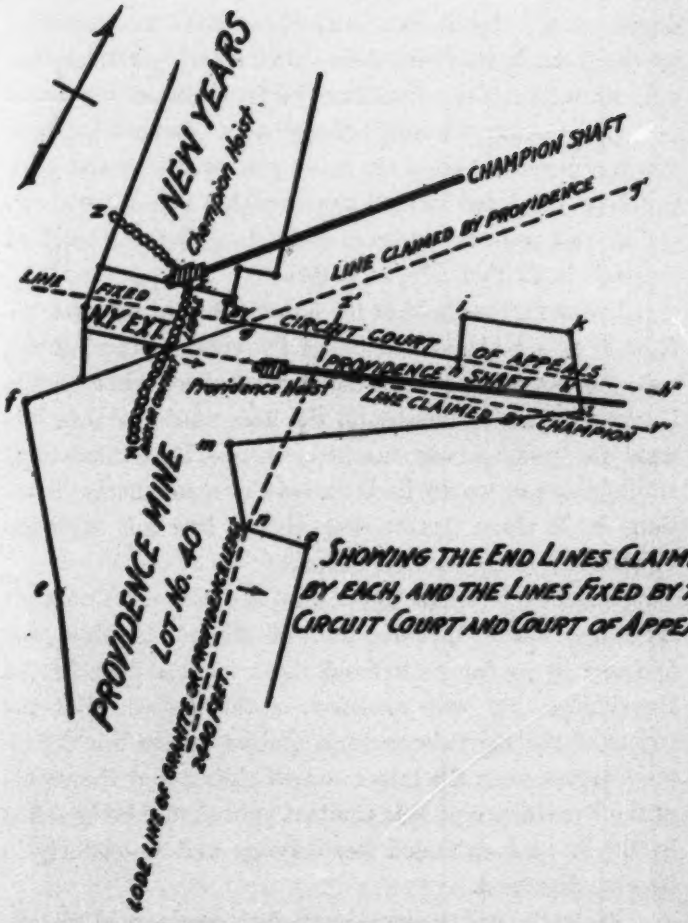
In support of this contention, plaintiff cites the case of *Walrath* vs. *Champion Mining Co.*, 171 U. S. 293, wherein this court, at pages 311-2, says:

> "It is the end lines alone, not they and some other lines, which define the extralateral right, and they must be straight lines—not broken or curved ones—they must be straight—no other defined planes which can be continuous in their own direction within the meaning of the statute."

That case, we believe, will be found upon examination to be opposed to the contention of plaintiff. In the diagram opposite we present a copy of the plat accompanying the decision of this court (found on following page).

The Providence lode, shown in part upon said diagram, was located prior to but patented under the law of 1866. The New Year's Extension lode, shown upon the diagram, was located in the year 1877 by the Champion Mining Company. As originally located the lines of the New Year's Extension extended in part over the surface

ground of the Providence claim. In 1884 a new location of the New Year's lode was effected, whereby all conflicting claims to the lodes and surface of the Providence were entirely relinquished by the Champion. The diagram shows the lines of the New Year's Extension as relocated. The apex of the discovery vein of the Providence called the Granite vein extended throughout the entire length of the claim, the vein dipped to the east, and is also shown upon the diagram. The Contact vein, as it was called, as far as the Providence claim was concerned, was a subsidiary or secondary vein, but was the primary or discovery vein of the New Year's Extension and crossed that location from north to south so that the northerly and southerly *located* side lines were its *legal* end lines. The litigation related to and involved only the rights of the respective parties on this Contact vein. The Providence claimed that the end line f-g, which is one of the northerly boundaries of that location, constituted an end line, so far as the Contact vein was concerned, and that its owners were entitled to pursue that vein extralaterally and at all points southerly of the line f-g extended in its own direction. The Champion, on the other hand, contended that the Providence was not entitled to pursue this Contact vein on its dip or otherwise northerly of the line v-v^1 for the reason that the Contact lode which, like the Granite lode, dipped to the east, departed from the Providence patent at the point v. The case was tried before Judge Hawley, sitting as circuit judge. He decided that



SHOWING THE END LINES CLAIMED BY EACH, AND THE LINES FIXED BY THE CIRCUIT COURT AND COURT OF APPEALS.

the end lines of the Providence were the southerly boundary a-p, and the line g-h, one of the northerly boundaries of the claim; that both these lines were crossed by the Granite lode and were substantially parallel—the only lines, therefore, fulfilling the functions of end lines.

(Now, since a mining claim cannot have more than two true legal end lines, the line f-g must have been by the courts in that case treated as one of the side lines of the claim, and it is so designated by the Circuit Court of Appeals in 72 Fed. 978, at p. 980.)

It was further held at the Circuit that as between the New Year's Extension and the Providence, the line f-g was the boundary; that the Providence rights on the Contact should be limited to the area south of that line until the point g was reached, thence its extralateral rights thereon would be bounded (in a northerly direction) by a plane drawn through the line g-h extended indefinitely in its own direction.

Walrath took an appeal to the Circuit Court of Appeals, where the decision of Judge Hawley was affirmed in so far as it fixed the true end lines of the Providence, but was modified in the respect that the rights of the Providence were limited by the line f-g on the Contact vein, the latter court holding that the rights of the Providence on this Contact vein should be bounded by the line g-h extended westerly, as well as easterly in its own direction.

Walrath, still being dissatisfied, prosecuted an appeal to this court, in which the decision of the Circuit Court of Appeals was affirmed.

(It will be observed that the northerly extremity of the Providence patent is the line i-k, or the northerly boundary of the quadrilateral h-i-k-h^1.) The result of Judge Hawley's decision was that Walrath was deprived of all ore north of the lines f-g and g-h, and the result of the decision of the Circuit Court of Appeals was that he was deprived of all ores in the Contact vein, including that part of the lode beneath the quadrilateral, north of the line g-h extended both easterly and westerly in its own direction.

(It may be suggested by the plaintiff-in-error that since the Providence claim was located prior to the Act of 1872, it might be in any form, no matter how irregular, and that parallelism of end lines was not required by the Act of 1866. This, however, cannot be said of the New Year's Extension lode which was located under the Act of 1872.)

By virtue of the relinquishment of the territory contained in the new location of the New Year's Extension lode, the line f-g became the boundary line both as to lode and surface, between the Providence patent and the New Year's Extension location. This line appears to be part of the southerly boundary of the New Year's Extension location. Was it the southerly end line or a part of the southerly end line, for the purpose of defining extralateral rights? If it had been so regarded by the courts, the New Year's Extension could not possibly have had any right whatever within the Providence patent, for the line f-g projected in its own direction would entirely exclude the New Year's Extension from

the Providence territory. Accordingly, the court must have held that the line f-g was not the southerly end line or any part of the southerly end line of the New Year's Extension. The southerly end line of the New Year's Extension, for extralateral purposes, must therefore have been held to be the line running from the point v westerly to the southwest corner of the New Year's Extension claim, crossed by the Contact vein, for on no other theory could the court, as against the Champion, have limited the right of the Providence to any part of any vein found within the boundaries of the Providence extended downward vertically. Regardless of any question of extralateral right, the owners of the Providence were, of course, entitled to and were the owners of all ores found beneath the surface of that claim save as aganist one who might establish that a portion of such ore (to-wit, that found beneath the quadrilateral h-i-k-h^1) belonged to a vein which had its apex in a claim owned by him and that his claim was so laid upon the apex thereof as to give to him extralateral rights which would include such ore. All the Providence had to do in order to make a prima facie case entitling it to all the ores within the surface boundaries of its patent would be to introduce the patent itself. For it has been repeatedly held that there is a presumption, only to be overcome by evidence, that the owner of a mining claim is the owner of everything found beneath the surface thereof.

That the owners of the New Year's Extension, notwithstanding its southerly boundary was a broken line,

had a right to pursue the Contact vein extralaterally, was clearly recognized not only by the Circuit Court and the Circuit Court of Appeals, but by this Honorable Court, for it was awarded by the decree of the Circuit Court, which in this respect was affirmed on both appeals, all of the ores northerly of the line g-h extended including that within the parallelogram h-i-k-h^1, the surface of which had been patented to the Providence. This is made clear by what is found in the statement of the case in this court, wherein at page 300, it is said:

> "As a result of this decree the complainant was not only shut out of all extralateral rights in the Contact vein north of the line g-h-h^1, but also of that portion of the vein lying vertically beneath the surface lines of the Providence which extend north of that line, and which are marked upon the figures as constituting the parallelogram h-i-k-h^1, which was awarded to the Champion."

And in the body of the opinion, at page 311, it is said:

> "The right to that portion of the Contact ledge within the boundaries of the parallelogram h-i-k-h^1 presents an interesting question. It does not appear to have been submitted to either of the lower courts, but the right by the decree of the circuit court is given to appellee by adjudging to it that portion of the vein on its dip which lies northeasterly of the line g-h and its continuation.
>
> "The question is a new one in this court, but we think it is determined by the principles hereinbefore laid down."

Also, in this statement, at page 300 (referring to the assignments of error), it is said:

> "* * * The last two assail so much of the decree as awards to appellee the right to pursue the vein on its downward course underneath the parallelogram h-i-k-h[1]."

Each of the courts, therefore, must have regarded so much of the line f-g as constitutes in part the southerly boundary of the New Year's Extension as a side line, and not an end line of that claim, notwithstanding it formed a part of the southerly boundary of the claim. Now, the southerly end line, or boundary line, rather, of the New Year's Extension is just exactly as much a broken line and no more so than is the westerly end line, or boundary line, of the West End claim.

It follows, under the authority of this Walrath case, that if the northerly dipping vein, the discovery vein, in the West End claim had crossed not only the east end line of the location, but the northerly segment of the west boundary line which parallels the east end line, and if the secondary or subsidiary vein within the claim had crossed the east end line and the southerly segment of the westerly boundary line and had dipped northerly instead of southerly, the owners of the West End claim would, by virtue of intralimital rights, have been entitled at least to the whole of the latter vein easterly of the southerly segment, to the point where the southerly and northerly segments of the west boundary join, and from thence northerly would be entitled to pursue the same extralaterally between vertical planes drawn one through the east-

erly end line and the other through the northerly and parallel segment of the westerly boundary, each extended indefinitely in its own direction. The easterly end line and the northerly segment of the westerly boundary being crossed by the discovery vein, would be the true legal end lines of the claim and would bound or limit the extralateral right upon any other vein the top or apex of which might be found within the surface boundaries of the claim; and the southerly segment of the westerly boundary would have to be regarded or treated as a part of the southerly side line just as the line f-g in the Walrath case was regarded and treated as a part of the side line not only of the Providence, but of the New Year's Extension.

It has been judicially declared that the intent of Congress was to secure to the locator of a vein or lode, who had complied with the provisions of the Act, the possession and enjoyment of a length upon the discovery and all other veins throughout their entire depth, the tops or apices of which are found within his boundaries, equal to the length along the top or apex thereof covered by his location, and the courts, as we will see, have manifested, especially in later years, a disposition to place a liberal interpretation upon the statute in order to give effect to this intent and to secure to the locator this right. For instance, notwithstanding it was apparent from the plain letter of the Act that Congress

contemplated that mining locations should be laid along the course of the vein embracing its top or apex, and that the extralateral right could be pursued only beyond the side lines—not the end lines or an end line—of the claim, yet it is well settled that if one, by inadvertence or mistake, so lays his claim that the vein on its course crosses the side lines thereof, these located side lines will be regarded as the *legal* end lines of his claim and he is given extralateral rights upon the vein throughout its entire depth beyond his *located* end line, but between planes drawn vertically downward through the *located* side lines of his claim.

Empire M. & M. Co. vs. *Toombstone M. & M. Co.*, 100 Fed. 910, 913-914; *Last Chance Mining Co.* vs. *Bunker Hill M. & C. Co.*, 131 Fed. 579, 586-8; *State-Idaho M. & D. Co.* vs. *Bunker Hill M. & S. Co.*, 131 Fed. 591, 603-4; *Empire M. & M. Co.* vs. *Toombstone M. & M. Co.*, 131 Fed. 339, 344; *Gleason* vs. *Martin-White Company*, 13 Nev. 459, 460. *Lindley on Mines*, Vol. 2, Secs. 367, 589.

Again: It was long a controverted question whether any extralateral right attached to a vein which at its top and on its course crossed an end line and side line of the claim,—those who denied the existence of such right contending that since the lines of the claim so crossed by the vein were the *legal* end lines, and since they were not parallel, the owner of the claim could not follow the vein beyond its vertical boundaries.

The question finally came before the courts for determination and it is now well settled that in such a case the owner is entitled to follow such vein extralaterally

between planes, one drawn through the end line so crossed, and the other parallel thereto through the point on the side line where the vein leaves the claim.

Of the many cases in which this right has been upheld, it will be sufficient to cite the following:

Del Monte M. & M. Co. vs. *N. Y. & L. C. M. Co.*, 66 Fed. 212;

Fitzgerald vs. *Clark* (Montana), 42 Pac. 273,

both of which cases were affirmed by this court, the former in 171 U. S., p. 55, and the latter in the same volume, p. 92.

Again: In the case of *Ajax Mining Company* vs. *Hilkey, et al.* (Colorado), 72 Pac. 447, it appeared that the discovery vein in the Victor Consolidated claim, (which was laid in a northerly and southerly direction), owned by plaintiff, crossed the southerly end line of the claim and departed over the easterly side line at a point 1000 feet distant from such end line (the claim being 1500 feet in length); there was a secondary vein, the apex of which was found within this claim, which crossed the westerly side line within a few feet of the northerly end line and traversing the claim diagonally, passed out of it over the easterly side line at a point 200 feet northerly of the southerly end line. This secondary vein dipped westerly and in its downward course passed beyond the westerly side line into and beneath the surface of the Triumph claim, owned by the defendants.

Plaintiff's action was brought to recover the value of ores taken by defendants from this vein where it was found on its dip beneath the surface of the Triumph.

The whole of the Triumph claim lay to the north, or northerly of the point where the discovery vein crossed the ~~westerly~~ easterly side line of the claim, as before stated.

It was contended on the part of defendants that since the extralateral right, on the discovery vein, was limited by its planes, one drawn through the end line crossed by it and another parallel thereto through the point where it departed from the claim over the side line thereof, that plaintiff could assert no extralateral right upon the secondary vein northerly of the latter plane, because, as defendants contended, the *legal* end line planes which bound the extralateral rights of the discovery vein must bound or limit the extralateral rights on all secondary veins.

The court overruled this contention, deciding that the plaintiff was entitled to extralateral rights on this secondary vein between planes parallel to the located end lines, one through the point where this vein crossed the westerly side line, and the other through the point where it departed from the claim, over the easterly side line.

The case last above cited is quoted from with approval by the Circuit Court of Appeals of the Eighth Circuit in the case of *Work Mining & Milling Company* vs. *Doctor Jack Pot Mining Company*, 194 Fed. 620, (at page 629).

The extent to which the Circuit Court of Appeals of the Ninth Circuit has gone in an effort to safeguard and uphold the extralateral right of the locator finds

illustration in the following cases, among others that might be cited:

Bunker Hill & S. M. & C. Co. vs. *Empire State-Idaho M. & D. Company*, 109 Fed. 538;

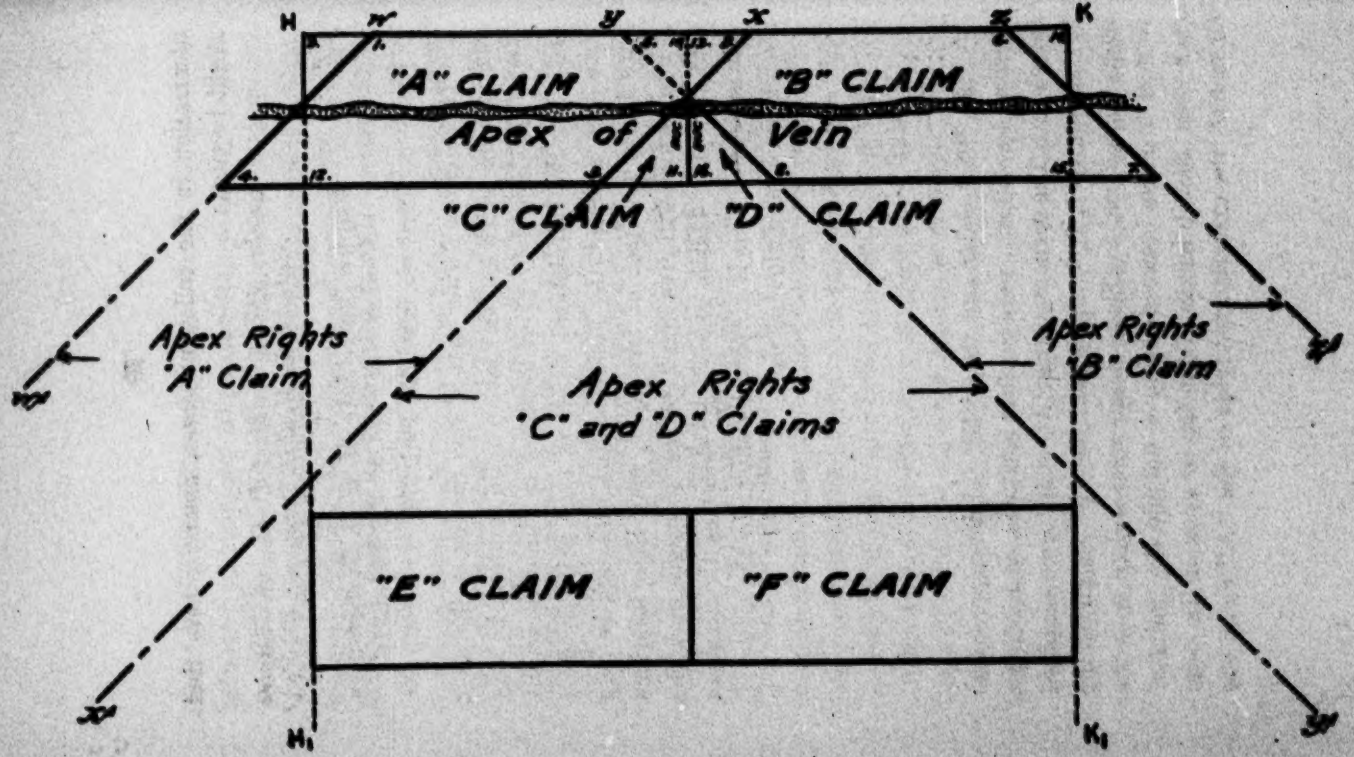
Empire State-Idaho M. & D. Company vs. *Bunker Hill etc. Co.*, 131 Fed. 591;

Same vs. *Same*, 121 Fed. 973.

These cases decide that if one discovers the apex of a vein on which he can make a valid location, he may throw his claim over prior locations in either direction, and after the extralateral rights of such prior locators have been satisfied, the junior locator, although he may have but a few feet of free apex, may base locations thereon which will give him 3,000 feet in length upon the vein at depth. ~~This is graphically shown by the diagram vein at depth.~~ This is graphically shown by the diagram, Sketch No. 5, on following page.

The "A" claim and the "B" claim represented thereon, we will say, were the first locations, each being a full claim. The corners of the "A" claim are designated by the figures 1, 2, 3, and 4, and the "B" claim by the figures 5, 6, 7 and 8. These claims were so laid upon the vein as to leave between the two—outside the limits of each—ten feet in length of the top or apex of the vein. Of course, the extralateral rights of the "A" claim are

Sketch 5.


H
K
"A" CLAIM
"B" CLAIM
Apex of Vein
"C" CLAIM
"D" CLAIM
Apex Rights "A" Claim
Apex Rights "C" and "D" Claims
Apex Rights "B" Claim
"E" CLAIM
"F" CLAIM
H1
K1

bounded by the dotted lines on the diagram W—W-1 and X—X-1, while the extralateral rights of the "B" claim are bounded by the planes Y—Y-1 and Z—Z-1. Subsequent to these locations Brown locates the "E" claim and the "F" claim as shown by the diagram, both of which have gone to patent. Thereafter, Smith, having ascertained that there was this ten feet of free apex between the "A" claim and the "B" claim, makes two locations thereon, namely, the "C" claim (the corners of which are designated on the diagram, or Sketch 5, by the figures 9, 10, 11 and 12), embracing five of the ten feet of free apex, and the balance, or 1495 feet in length of the claim, is thrown westerly, overlapping the "A" claim, while the "D" claim, (the corners of which are designated by the figures 13, 14, 15 and 16), includes the remaining five feet of such free apex, the balance of the claim, namely, 1495 feet in length being thrown easterly overlapping the "B" claim. Now, under the decisions above cited, Smith has extralateral rights on the vein throughout its entire depth between the lines or planes H—H-1 and K—K-1, except those portions thereof which fall within the extralateral right limits of the "A" claim and the "B" claim respectively, thus giving him at depth 3,000 feet in length upon the vein which includes all of the ore bodies, however extensive or valuable they might be, found in the vein in its downward course beneath the surface of the "E" claim and the "F" claim.

The doctrine announced in these cases is upheld upon the ground that while it is true that there was but ten feet of free apex open to location, yet Smith had the

right to throw his claims over the senior locations as aforesaid, and though he did not own the apex in the overlapping areas, yet he had the right to follow the vein on its dip or downward course as aforesaid, and claim all of the ore beneath the surface of the "E" claim and the "F" claim, because the vein did not have its top or apex in either of these claims, and did not belong to the locators thereof, even as against Smith, who owned no more than ten feet of its apex.

In *Consolidated Wyoming Gold Mining Co.* vs. *Champion Mining Co.*, 63 Fed. Rep. 540, at pp. 548-9, the court says:

> "• • • The statute should be so construed as to give to the locator what he actually locates; no more and no less. It should be liberally construed in his favor, so as to give him the full benefit of the statute in its true spirit and intent, in order to carry out the wise and beneficent policy of the general government in opening up the mineral lands for exploration and development. When the prospector discovers a vein of ore of sufficient value to justify the expenditure of time, labor, and money to open up and develop the same, he is honestly and legally entitled to the fruits of his labor. He is admonished by the law that he will be limited in the length of his lode upon its strike to such portion as is within the surface lines of his location, but he is at the same time assured that he will not be limited or deprived of his extralateral rights as to the depth of such lode, upon its dip, the apex of which is within the surface lines of his location. The statute of 1872 gives to locators of mining claims 'the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of

all veins, lodes, and ledges, throughout their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes, or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of such surface locations.' These are their extralateral rights, which should neither be extended nor restricted by the courts. The only limit placed by the statute is that 'their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward, as above described, through the end lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges.' One general principle should pervade and control the various conditions found to exist in different locations, and its guiding star should be to preserve in all cases the essential right given by the statute to follow the lode upon its dip, as well as upon the strike, to so much thereof as its apex is found within the surface lines of his location."

(The court was dealing with a case where the vein in question crossed a located end line and side line.)

In *Tyler Mining Co.* vs. *Last Chance Mining Co.*, 71 Fed. 848 (which was also a case where the vein crossed the end line and departed from the claim over one of its side lines), the court, at p. 851, says:

"What the defendants now ask is, in effect, the application of the common-law rule. To do this, we must find some warrant for it in the statute, or at least nothing against it. If there is any right emphatically granted by the mining laws, it is one in direct contravention of the common law. Sec-

tion 2322, Rev. Statutes, grants to the locator of a ledge (1) the right to follow it throughout its entire depth; (2) contrary to the common-law rule, to so follow it 'outside the vertical side lines of the surface location'; and (3) when he so locates his claim that his ledge passes through his two end lines, there is no doubt that he can follow it on its dip indefinitely, and along its course for a distance equal to that between the two end lines. In other words, the right granted is to follow it downward wherever it may go, regardless of the vertical planes of his side lines, and for a length along its course equal to the length of apex within his surface limits restricted only by the vertical, extended planes of his end lines. What reason, under the law, can be assigned why these rights shall not apply when his location is such that his ledge passes through it in some other way than from end to end? The law does not say that his ledge must run from end to end, but he is granted this right of following 'all veins, lodes and ledges throughout their entire depth, the top or apex of which lies inside of his surface lines.' Upon the fact that an apex is within his surface lines, all his underground rights are based. When, then, he owns an apex, whether it extends through the entire or through but a part of his location, it should follow that he owns an equal length of the ledge to its utmost depth. These are the important rights granted by the law. Take them away, and we take all from the law that is of value to the miner. Courts will not fritter them away by ingrafting into the law antagonistic common-law principles, or other judicial legislation. Is there any difficulty in applying these rights to a location wherein the ledge passes through an end and a side line? What are the planes that must then bound the underground rights? It will be conceded that the plane of the end line through which

the ledge passes shall be one. The statute says the right to follow the ledge along its course underground shall be limited by the planes passed through the two end lines, but it is manifest that this rule cannot be followed when the apex of the ledge, before reaching the other end line, passes out of a side line, for it would give the locator more of the ledge underground than he has of apex. It would give him a portion of the ledge of which he does not hold the apex, and to hold that his ledge shall be cut off by the vertical plane of his side line is cutting off the right to follow it down which the law has given him. Instead thereof, to establish at the point where the apex crosses the side line a vertical plane parallel to the plane of the end line cut by the apex, and allow him to follow the ledge on its dip between these two planes, is not in violation of any provision of the statute, and gives the miner no greater rights than the statute intends he should have."

This court, in the *Del Monte* case, 171 U. S., p. 91, refers to and quotes with approval from the case last above cited, as follows:

"* * * In *Tyler Mining Co.* vs. *Last Chance Mining Co.*, * * * Beatty, District Judge, in the course of his opinion pertinently observed: 'What reason under the law can be assigned why these rights shall not apply when his location is such that his ledge passes through it in some other way than from end to end? The law does not say that his ledge must run from end to end, but he is granted this right of following 'all veins, lodes, and ledges throughout their entire depth, the top or apex of which lies inside of his surface lines.' Upon the fact that an apex is within his surface lines, all his underground rights are based. When, then, he owns an apex, whether it extends through

> the entire or through but a part of its location, it should follow that he owns an equal length of the ledge to its utmost depth. These are the important rights granted by the law. Take them away, and we take all from the law that is of value to the miner."

Doubtless the intent and purpose of the Act of 1872 requiring parallelism of end lines of a mining location, was to prohibit or preclude the locator from claiming or holding any greater length upon the vein at depth than the length of the apex of the vein found within his surface lines.

In *Second Lindley,* Section 574, at page 1271, the author says:

> "We think it can be plausibly asserted that the object and intent of the Act of 1872, in so far as it required parallelism of end lines as a condition precedent to the exercise of the extralateral right, and as applied to locations made subsequent to its passage, was to prevent the locator in following his vein downward from acquiring a greater length underneath the surface than he had at the surface."

But let us suppose that within a valid mining claim there is found a vein or lode which on its course and at its top or apex crosses both of the located end lines of the claim; that these are straight lines, but instead of being parallel they are converging in the direction of the dip or downward course of the vein. If the courts were to lose sight of the spirit and intent of the Act and adhere strictly to the letter thereof, they would have to say to the owner of the claim:

> "The statute under which you claim extralateral

rights requires in plain terms that 'the end lines of each claim shall be parallel to each other.' Confessedly the end lines of your claim are not parallel and notwithstanding they are found to be converging in the direction of the downward course of your vein, you cannot be awarded any extralateral right thereon without doing violence to the plain letter of the statute."

The courts, however, having regard to the plain intent of the law, have upheld the extralateral right of the locator under such conditions, bounding the same, however, by vertical planes drawn through these converging end lines, each extended in its own direction until they intersect.

In *Second Lindley on Mines*, Section 574 (p. 1272), it is said:

"Neither a location nor a patent with converging end lines falls within the reason of the rule. There can be little doubt that extralateral rights may be enjoyed under locations made or patents issued under either act where the end lines converge in the direction of the dip of the vein, giving the locator or patentee less in length on the vein beneath the surface outside of his vertical boundaries than he has at the surface."

And in Section 582, the author after commenting upon a number of cases in which the question of extralateral rights is dealt with, says (p. 1300):

"Where, however, the two lines crossing the lode converge in the direction of the dip, intersecting, as they are produced, at some point beyond the side lines, we cannot see upon what principle the doctrine can be maintained. Where the reason of the rule ceases, the rule itself should cease. To

say to a claimant with converging end lines, 'the law permits you to take as much of the vein in its downward course, beyond the side lines, as you may include within parallel surface side lines. You have taken less than you might have acquired; therefore, you shall have nothing,' is illogical."

And in *Carson City Gold & Silver Mining Company* vs. *North Star Mining Company*, 73 Fed. 597, Beatty, Judge, delivering the opinion, says, at p. 602:

"* * * That the end lines are not parallel cannot be the basis of an objection, because their convergence when extended in the direction of the dip of the vein, would give defendant less, instead of more, than the law provides for."

And the Circuit Court of Appeals, in the same case, 83 Fed. 658, says (at p. 669):

"The plaintiff in error contends that, if the patented area of the North Star is to be considered as a location, its end lines are not parallel, as found by the court, and that under Section 2320, Rev. St., the defendant in error possesses no extralateral rights under it. The Act of 1866, under the provisions of which the patent in this case was applied for, and under which the rights of defendant in error accrued, did not require parallelism of end lines. * * * Moreover, the end lines, as marked on the diagram, converge in the direction of the dip; giving the patentees less of the vein or lode, in depth, than they had at the surface. The object of the Act of 1872 in requiring parallelism of end lines was intended to give to the claimant of the lode as much of the lode or vein in its downward course as he had at the surface, but no more."

In the case of *Bunker Hill and S. M. & C. Co.* vs. *Empire State-Idaho M. & D. Co.*, 109 Fed. 538, it was conceded by the able counsel who represented the plaintiff in error that the owners of the Emma claim had the right to follow the vein in its downward course between vertical planes drawn through its converging end lines to the point of their intersection. (The Emma claim was located long after the passage of the Act of 1872.)

If the southerly dipping vein in the West End claim had crossed the easterly end line and the southerly half of the located west end line, the right to follow it extralaterally between converging end line planes would have been unassailable; on the other hand, had the discovery vein crossed the easterly end line and the northerly half of the west located end line and dipped northerly, and a secondary vein were found in the claim which crossed the easterly end line and the southerly segment of the west located end line, and also dipped northerly, the owner of the claim as to the latter vein would have intralimital rights thereon until the southerly segment of the broken west end line met the northerly segment and thence onward he would have extralateral rights upon the secondary vein between planes, one through the easterly end line, and the other through the northerly segment of the located west end line. This in accordance with the decision of all three courts in the case of *Walrath* vs. *Champion Mining Company.*

Again, what are the functions of end lines? In *Second Lindley*, Section 365, the author says:

"The function of end lines may be said to be

twofold:—(1) They stop the pursuit of the vein on its strike; (2) When properly constructed with reference to the located lode, permitting the exercise of extralateral right, they may be produced indefinitely in their own direction, so that vertical planes drawn downward through them, as so produced, carve out a segment of the vein throughout its entire depth, the ownership of which becomes vested in the locator, provided that the end line planes as extended do not conflict with the extralateral right planes of a prior locator."

Now, the westerly located boundary or end line of the West End claim does not perform either of these functions, nor would it do so if it had been a straight line parallel throughout to the east end line of the claim. It does not stop the pursuit of any vein in the claim on its course, for there is no vein the top or apex of which is found within the West End claim which reaches it. According to the undisputed testimony and the court's findings, the northerly dipping vein (which we claim was the discovery vein) departs from the claim over the northerly side line thereof 1120 feet westerly from the northeast corner of the claim, while the southerly dipping vein (which we claim was a secondary vein) crosses the same side line 1142½ feet westerly from the northeast corner of the claim. Under all the decisions heretofore rendered respondent's extralateral rights upon the northerly dipping vein are bounded by planes, one through the easterly end line which it crosses, and the other parallel thereto through the 1120-foot point; while the extralateral right upon the southerly dipping vein is bounded by planes, one through the east end line, and the other

parallel thereto through the 1142½-foot point. These would be the bounding planes of these respective veins even though the west located end line had been throughout parallel to the east end line. If the west located end line had been a straight line parallel to the east end line, a plane drawn through such west end line would not fix, define or limit the right of the owners of the West End claim as to either the northerly dipping or southerly dipping vein intralimitally or extralaterally. The westerly bounding plane of each of the veins is found several hundred feet east of the westerly boundary of the claim, and there is no vein, it will be borne in mind, the top or apex of which exists in the West End claim which does not on its course westerly terminate hundreds of feet before the westerly boundary or end line is reached. This line does not stop (nor if it were a straight line parallel throughout to the east end line would it stop) the pursuit on its course of any vein in the claim. Neither would a plane drawn vertically downward through such line limit or define the extralateral right upon any vein the top or apex of which is found within the claim.

Under such conditions, to hold that the owner of this claim has no extralateral right upon any vein the top or apex of which is found within his surface boundaries, because the located westerly end line, so-called, is not parallel throughout to the easterly end line, would be to sacrifice the spirit of the law to the dry letter thereof. Why should the spirit of the law be thus ignored? The West End Company, or its predecessors, at great expense, discovered this vein and developed the same. The

appellant was a stranger to its discovery and to its development. The location of the Eureka and Curtis claims of appellant, if made honestly and in good faith, must have been based upon the discovery of a vein, the top or apex of which was found within these claims, respectively. Neither of the locations of these claims could have been based upon the vein here in controversy, for confessedly no part of its top or apex is within either of them. If the Eureka and Curtis claims were located solely upon the hope or expectation of thereby securing all of the vein in controversy which should be found to extend beneath the surface of these claims, the locators thereof would occupy a position which was condemned by this Court in the case of *Lawson* vs. *United States M. Co.*, 207 U. S. 1.

Certainly there is no equitable consideration which would incline the court to deny respondent, who discovered and developed the vein, all extralateral rights thereon in favor of plaintiff, a stranger to the discovery. We submit that nothing save inexorable necessity arising out of the language of the act could induce any court to travel to a conclusion upholding plaintiff's contention. In *Second Lindley*, Section 592, at p. 1365, the author quotes from the decision of this Court in the *Del Monte* case, as follows:

> "The law places a limit on the length of the vein beyond which he may not go, but it does not say that he shall not go outside the vertical side lines unless the vein in its course reaches the end lines. Nowhere is it said that he must have a vein which

> either on or below the surface extends from end line to end line in order to pursue that vein on its dip outside the vertical side lines. Naming limits beyond which a grant does not go is not equivalent to saying that nothing is granted which does not extend to those limits. The locator is given a right to pursue any vein whose apex is within his surface limits, on its dip outside the vertical side lines, but may not in such pursuit go beyond the vertical end lines. And this is all the statute provides. Suppose a vein enters at an end line but terminates half way across the length of the location, his right to follow that vein on its dip beyond the vertical side lines is as plainly given by the statute as though in its course it had extended to the farther end line. It is a vein the top or apex of which lies inside of such surface lines extended downward vertically."

And on the following page the author makes this statement:

> "The excerpt quoted above from the decision of the Supreme Court of the United States in the *Del Monte* case is a clear enunciation of a wholesome principle which prevents the 'frittering away by construction' of the most valuable right granted by the mining laws, and prescribes a rational rule, the application of which will result in a commonsense solution of many of the problems encountered in the administration of those laws."

We commend this statement to the court's favorable consideration. It is an apt and pertinent commentary upon plaintiff's contention here by which it seeks to have this court "fritter away by construction" the rights and the property of respondent.

In the interpretation of a statute the effort of the court always is to discover the intention of its author—the object or purpose which the legislature intended to secure by its enactment.

When the intention of the lawmaker is manifest, or when by interpretation its intention is clearly ascertained, the courts will so construe the lagnuage of the act as to give effect, if possisble, to this manifest or ascertained intent. To this end the language employed in the act may be expanded beyond or restricted within its natural import. The rigor of the letter of the law will be made to yield to its spirit whenever this is necessary to effectuate the intent of the lawgiver. Any construction which would lead to an unjust, unreasonable or absurd result must, if possible, be rejected, for the presumption is to be indulged that the legislature did not contemplate or intend any such consequence.

In *Ex parte Ellis,* 11 Cal. 222, the following statement is found in the syllabus:

> "It is the duty of the courts to execute all laws according to their true intent and meaning; that intent, when collected from the whole and every part of the statute taken together, *must prevail, even over the literal sense of the terms, and control the strict letter of the law,* when the letter would lead to possible injustice, contradiction and absurdity."

And at pages 224-225, in the body of the opinion:

> "'When a particular construction of a statute, applied to a case which it seems by its terms to include, there follows from such a construction an absurd consequence; respect for the legislature will induce the court from thence to conclude that

some other construction, which will not produce such a consequence, ought to be adopted. Hence, every construction which leads to an absurdity ought to be rejected. (Smith's Com. 663.)

"'It is said that this rule should be followed, even in cases where there is neither obscurity nor anything equivocal in the law itself, for the reason that the absurdity of the literal sense of the law does not proceed merely from the obscurity of any other fault in the expression, but from the narrow limits of the human mind, which cannot foresee all cases and circumstances, or include all the consequences of what is ordained; that it is impossible for the legislature to enter into immensity of detail. It can only make laws in a general manner, and in applying their acts to particular cases, the construction ought to be conformable to the intention of the legislature. It cannot be presumed that the legislature intended anything absurd. When, therefore, the words, when taken in their obvious and proper sense, lead to it, it is necessary to turn them from that sense just as far as is sufficient to avoid an absurdity, if from the whole perview of the law, and giving effect to all the words used in it, it may fairly be done.'" (Citing Smith's Com. 664, *U. S.* vs. *Fisher*, 2 Cranch 400.)

In *Castner et al.* vs. *Walrod*, 83 Ill. 171, it is said, at page 179:

"'It has been decided that a thing within the letter was not within the statute, unless within its intention. The letter is sometimes restrained, sometimes enlarged, and sometimes the construction is contrary to the letter. (4 Bac. title Statute, 1, Secs. 38, 45, 50.) Every statute should be construed with reference to its object, and the will of the law-maker is best promoted by such a

construction as secures that object, and excludes every other.'"

In *Bell* vs. *City of New York*, (N. Y. Appeals, same case) 11 N. E. 495, it is said at page 497 (Peckham, Judge, delivering the opinion):

"* * * The exact and literal wording of an act may sometimes be rejected, if upon a survey of the whole act, and the purpose to be accomplished or the wrong to be remedied, it is plain that such exact or literal rendering of the words would not carry out the legislative intent."

In *Jones* vs. *Guaranty and Indemnity Co.*, 101 U. S. 622, the court, at page 626, says:

"* * * A thing may be within a statute but not within its letter, or within the letter and yet not within the statute. The intent of the lawmaker is the law."

In *Oates* vs. *National Bank*, 100 U. S. 239, the court at page 244, says:

"* * * The duty of the court, being satisfied of the intention of the legislature, clearly expressed in a constitutional enactment, is to give effect to that intention, and not to defeat it by adhering too rigidly to the mere letter of the statute, or to technical rules of construction. * * * And we should discard any construction that would lead to absurd consequences. *United States* vs. *Kirby*, 7 Wall. 482. We ought, rather, adopting the language of Lord Hale, to be 'curious and subtle to invent reasons and means' to carry out the clear intent of the law-making power when thus expressed. * * * 'A thing which is within the intention of the makers of a statute is as much within the statute as if it were within the letter; and a thing which is within the letter of the statute

is not within the statute unless it be within the meaning of the makers.' "

In *United States* vs. *Jackson*, 143 Fed. 783, the court says, at p. 786:

"• • • Courts should search out and follow the true intent of Congress, and adopt 'the sense of the words which harmonizes best with the context, and promotes in the fullest manner the apparent policy and object of the legislation.' "

See also, *Church of Holy Trinity* vs. *United States*, 103 U. S. 457;

People vs. *Utica Insurance Co.*, 15 Johnson's Reports, p. 355, pp. 380-381;

People ex rel vs. *Commissioner's Taxes*, 95 N. Y. 554, 558-559;

State of Nevada vs. *Toll Road Co.*, 10 Nev. 155, 160;

Ex parte Siebenhauer, 14 Nev. 365, 368-9;

State vs. *Ross*, 20 Nev. 61, 63;

State vs. *Clark*, 29 N. J. Law 96, 99.

There is no equitable principle—nothing in the cause of justice—to move this Court to so penalize (as plaintiff would have the court do) one who has discovered a vein or lode, located the same, and by his enterprise developed the wealth thereof. The plaintiff is here beseeching the court to ignore the spirit and obvious intent of the statute, to yield an unreflecting slavish adherence to the dry letter thereof in order to take from defendant, perhaps, the major part of that which he discovered, and deliver it over to the plaintiff. Why should the former be so punished—the latter so rewarded? As said by Mr.

Justice Brewer in delivering the opinion in the *Lawson* case, *supra:*

> "To take from the discoverer a portion of that which he has discovered and give it to one who may have been led to make an adjoining location by a knowledge of the discovery and without any previous search for minerals, is manifest injustice."

To avoid inflicting such wrong, we apprehend the court will find in the statute, construed according to its spirit, no difficulty in recognizing and upholding defendant's extralateral right upon the vein throughout its entire depth between planes, one drawn through the east end line of the claim, the other parallel thereto through the point where the vein crosses the northerly side line thereof (both extended in their own direction), as the courts have done in all other cases where it was made to appear that the vein or lode crossed an end line and a side line of the location.

There are a few suggestions in the brief of plaintiff in error not yet adverted to, which we will comment upon very briefly.

On page 37 it is said that if the statute may be so construed as to permit the exercise of extralateral rights in opposite directions beyond the side lines of a location, either on one and the same or on different veins, it would be equally permissible to allow an extralateral right beyond a vertical plane drawn through a side line and also one drawn through an end line of a claim. Not so, for by the terms of the Act, the extralateral right is to be bounded by vertical planes drawn through the end lines

of the claim so extended in their own direction as to intersect the exterior part of the vein or lode. The owner of a mining claim is not permitted, either by the letter or spirit of the Act, to pursue a vein the top or apex of which is found within the surface lines of his location beyond a true legal end line of his claim, either longitudinally or on its dip or downward course.

On page 40 of their brief counsel say:

> "Why should not the West End claim be permitted to exercise extralateral rights both to the north and to the south based on its anticlinal apex theory, and also in a third direction to the east, based on what is unquestionably a terminal edge of the vein crossing both side lines?"

Well, there are two answers to this query. *First*, as we have just pointed out, the West End Company could not be permitted to follow the vein extralaterally beyond a vertical plane through the east end line of its claim. *Second*, in the trial court, one of plaintiff's contentions was that the terminal edge referred to was the true top or apex of the vein, that it crossed the located side lines of the West End claim, and that if defendant were entitled to follow the vein, at all, extralaterally, it could only be so followed between vertical planes drawn downward through such *located side lines*, which were the *legal end lines*, extended easterly indefinitely in their own direction. But that court held that this contention was without merit. (See opinion, Tr. Vol. II, p. 634.) And it was waived or abandoned by plaintiff on its appeal to the Supreme Court of the State.

Also, on page 40 of their brief, counsel say:

> "Assume that we have a dome-shaped occurrence of a vein existing within the boundaries of a mining claim with the vein dipping in every direction from the apex or crest of the dome. Why not award the claimant an extralateral right in four directions?"

Again we reply that one who had laid a claim upon such a deposit would, as in case of all other mining locations, be precluded by the plain letter and intent of the Act from pursuing his vein extralaterally beyond either of the end lines of his claim. Once it was determined which were the end lines and which the side lines of his location, he could pursue it extralaterally only beyond vertical planes drawn through his side lines and between planes passed through his end lines. (The fact that the top or crest of a vein in the form of a dome or cone would not be in the likeness of a terminal edge, would be immaterial in the determination of the locator's extralateral rights. Let it be supposed that by erosion a vein in such form, if any such should ever be encountered, has been cut off, truncated near its top; as one followed around its perimeter, he would have a terminal edge exposed every foot of the way, and the difficulty, if any, in determining which were the end lines and which the side lines of a claim laid upon such a deposit and therefore what would be the bounding planes of the extralateral right would be the same, no greater nor less than it would be if the top of the deposit were not found in the likeness of a terminal edge. But we have here

no such vein or deposit to deal with. "Sufficient unto the day is the evil thereof.")

Again, at pages 41-2, counsel say:

> "We refer to Figures 3, 4 and 5, inserted in this brief, and respectfully urge that to grant appellee's contention and permit it to exercise double-barreled extralateral rights on the single flat, blanket-like vein occurrence there indicated and sweep the Tonopah mining district in both directions, is to place an unreasonable interpretation on Section 2322, and would lead to unjust and unnecessary hardships."

Unjust and unnecessary hardship to whom? Surely not to plaintiff in error, for no part of the top or apex of the vein is found in either the Eureka or Curtis claims owned by it, and the location of neither of these claims was or could have been based upon a discovery of the vein or veins found in the West End claim. And if there be in fact two veins, one dipping northerly and the other southerly, or if there be but one and the same vein in the form of a single anticline, with its opposite dipping limbs, to permit the owner of the claim who discovered and developed the vein or veins the right to follow the same extralaterally beyond the northerly and southerly side lines, between the bounding planes fixed by the court, would be in accordance not only with the plain letter, but with the spirit and intent of the Act. The statute permits a location to cover 1500 feet in length upon any vein or lode. In our case, owing to the fact that the top or apex of the vein or veins was buried beneath the lava flow and not discoverable from the surface, our claim was so

laid as to cover not 1500 but 1142½ feet only of the top of the vein on its course and our extralateral right, therefore, of course, is limited to the 1142.5 feet in length throughout the depth of the vein or veins. To award such extralateral right would not enable us, in the language of opposing counsel, "to sweep the Tonopah mining district." Moreover, this is the first time that it has ever been suggested or intimated that the extralateral right provided for in the statute was to be made dependent upon the size, any more than upon the richness of the vein discovered and validly located.

(The right of the locator to follow his vein in its downward course extralaterally is granted him, no matter how shallow or low the angle of declination may be. *Stevens* vs. *Williams*, 23 Fed. Cases, p. 44, at p. 46. *Same* vs. *Same*, 23 Fed. Cases, p. 40, at p. 42.)

Again, at pages 25-6 of the brief, it is suggested that peradventure, future developments may disclose that as the vein is followed in its downward course other undulations, synclinal and anticlinal folds, may be encountered therein. And it is said that "the courts are not going to perform the impossible and look into the undeveloped ground to prophesy whether there are other undulations or not beyond." The suggestion being that, since it is possible that other undulations may be encountered, the court should conjecture that such is the fact, and, acting upon such conjecture, based upon a mere possibility, deny to defendant who discovered, located and developed this vein, any extralateral right thereon, not-

withstanding the vein as developed for a distance of 1000 feet or more in its downward course is free from undulations.

Referring to Figure 11, found on page 45 of plaintiff's brief, we submit that if the vein there depicted is the only one the top or apex of which is found within the claim, the locator might well be awarded extralateral rights thereon between planes one drawn through the crossed end line and the other parallel thereto through the point where the vein departs from the claim over a side line thereof. This would give to him such length only upon the vein in depth as he had length of apex thereof covered by his location; the opposite end line of the claim shown in that figure does not limit or bound the locator's rights upon this vein either intralimitally or extralaterally; but however this may be, if the downward course of the vein was in the opposite direction to that indicated on Figure 11, clearly the locator would have extralateral rights thereon in the direction of the converging end line boundaries of the claim.

We respectfully submit that the Supreme Court of Nevada has correctly interpreted and applied the statute to the established facts in this case and that its judgment should be affirmed.

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